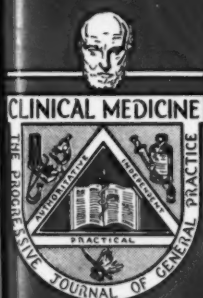


Clinical Medicine

LEADING ARTICLES

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DECEMBER
1946

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VOLUME 53

NUMBER 12



Brighter horizons for the petit mal patient

With the development of Tridione, children handicapped by frequent petit mal, akinetic and myoclonic seizures are offered new hope of attaining a more normal life. A product of Abbott research, Tridione has been tested thoroughly in clinical practice and has been found to give immediate and lasting benefits in numerous petit mal cases *not helped by other forms of medication*. For example, in one group of 50 patients who had not responded to other treatment, Tridione brought a cessation of seizures in 28 percent, reduced the seizures to less than one-fourth of the usual number in 52 percent, and had little or no effect on 20 percent. In some instances, the seizures once stopped *did not return* when medication was discontinued. Tridione also has been shown by clinical tests to produce beneficial effects in the control of certain psychomotor cases. Tridione is supplied in 0.3-Gm. capsules in bottles of 100 and 1000. Literature on request. ABBOTT LABORATORIES, North Chicago, Illinois.

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New Era of Surgical Drainage by Suction Applicable to Every Surgical Field

By R. C. CHAFFIN, M.D., Los Angeles, Calif.

MORE than 35 years ago, I began studying the problem of drainage as it applied to surgery. My first discovery was, that there were no means or methods of drainage of surgical fields other than gravity, but this force could rarely apply, because in most fields of surgery that require drainage, the direction of flow was "uphill."

My readers may immediately take exception to the above statement unless I hasten to explain, and the remainder of this article will deal with what drainage of surgical fields really means, how it is done now, and *why* it has not been done before.

In any discussion of this subject, it is necessary to delve into the dictionary and learn the folly of some of our surgical nomenclature.

The word drain has "cluttered" the surgical literature of more than a century, but it would appear that no one studied the problem closely enough to know how inapplicable the word is or if used, how it is entirely a misnomer. The dictionary, scientists, engineers and even the average layman will tell surgeons that drain means to withdraw or remove, or take out. Have we achieved this in our efforts or hopeful thinking? The answer is No. Let us study and analyze our efforts and those of our surgeon forefathers (providing we are doing the same as they) and determine just what we have been actually doing.

In making this study, we will consider only those fields wherein gravity is not available and that is nearly 100%, but force of gravity is used, I'll show later even in those few instances where the that this is much inferior to *real drainage*.

Here is what I find we have been doing: We open an abscess or other cavity

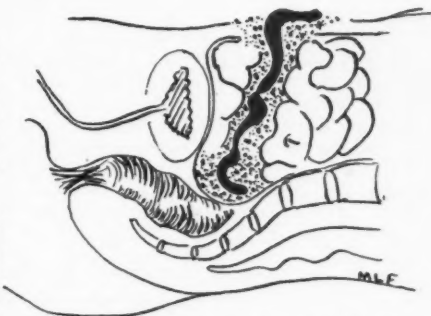


Fig. 1. This is to illustrate what a Penrose wick will *not* do in any abdominal cavity. Shaded area is collection of pus and serum flowing in every direction but "straight up." When the area is completely filled a small portion will overflow on the gauze. The area of infected tissue is increased many fold. This new infected area accounts for most postoperative temperature and sepsis. A suction tube in this cavity prevents new infection and removes all secretion from the bottom.

containing undesirable fluid, sponge it out, or in recent years suck it out. We then leave in the infected field, with no definite wall or protective surroundings, a foreign body of gauze, tube, metal, glass or recently the well-known Penrose rubber, and for some utterly unexplained reason call it a drain. What it really should have been correctly called is a wick with its exit through a vent. Vent is an aperture to *permit* escape, but there is no factor that withdraws.

What of "capillary" force? To dispose of this mentally troublesome idea, just fill a glass or bottle with thick fluid and place therein your favorite wick, leave it over night, and in the morning observe how well you have *not* drained.

That is what happens to your patient's right gutter, or pelvis, or Morrison's pouch, except the better demonstration

would have been to have put the testing fluid in a paper bag, then the bag would soon have dissolved, the fluid would quickly seek its level as the laws of physics state, and would be all over the table.

Your patient's undesirable fluid spreads laterally in all directions, infecting a much greater area, and finally when completely filled, a little comes out the vent, and in so doing badly infects all tissues of the incision, and all tissues between the original abscess and the surface.

A word about canalization: Those of us with wide experience with *real* drainage have found on opening many abdomens months or years later for other pathologic conditions, that there is not or has not been canalization around the "Chaffin tube" because infection had not spread or had not reached the surface, but had been completely sucked out following surgery.

Advantages of Suction Drainage Over Venting with Wicks

I believe, with many others not familiar with suction drainage, that wicks and vents have little value. Many surgeons have found in comparing primary closures of infected fields, with venting (Fig. 1) of the same fields, results were about the same. Some go even further in their opinion and claim wicks harmful.

What is the new technique of drainage? First, the drain is active, according to the true meaning of drain. It is removing, by suction, all fluid and secretion from the infected field or leaking viscus as rapidly as it is produced, and through the tubes and not around them. The process is continued constantly until nature has sterilized the field by auto-irrigation (tissue secretion is the only means of repair or resistance to infection). The incision has not been grossly infected and there is no potential hernia. The patient has required almost no dressing and there has been no odor, as this is eliminated by the drip irrigation of the tubes. This is all accomplished by the use of a special Chaffin tube (Fig. 2) and suction pump (Fig. 3) to withdraw the secretion.

Information and data from hundreds of

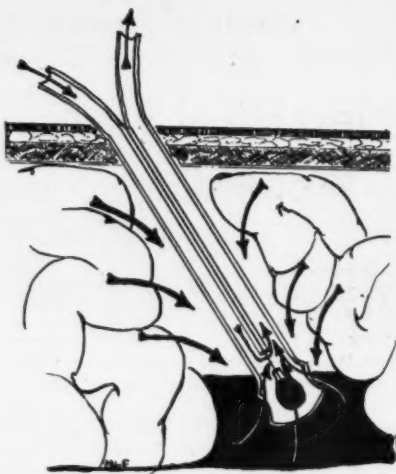


Fig. 2. Graphic illustration of a Chaffin tube in the abdomen, surrounded by loops of intestine. It is approximately 8 inches long with an inside diameter about five sixteenths of an inch. Large arrows show direction of peritoneal secretion by gravity to lowest point—bottom of "well." Small arrows show fluid entering tube to be aspirated by the pump. Air flows in freely in "open limb," through by-pass and out other limb, as shown. There is no suction on eyelets.

surgeons in scores of hospitals, seems to indicate that the mortality has been reduced 80 to 90 per cent below all other treatments.

I believe, the value of suction drainage in the abdomen compared to chemotherapy, is about 1000 to 1 if it were possible to complete it. I haven't the slightest concern is going into any abdomen with any kind of infection, or doing extensive intestinal or pelvic surgery in infected fields, and I have rarely used chemotherapy. General peritonitis has rarely occurred in thousands of drained cases. Nature combats the infection by peritoneal or other tissue secretions and we remove it. If we will continue to cooperate with this physiological process, the patient will recover and we need have no concern. And let me not forget to mention the average post-operative ileus. This annoying condition is conspicuously absent, because there is no accumulation of fluid and "drowning of loops" of intestines.

When to Drain (not Vent)

There are literally scores of fields

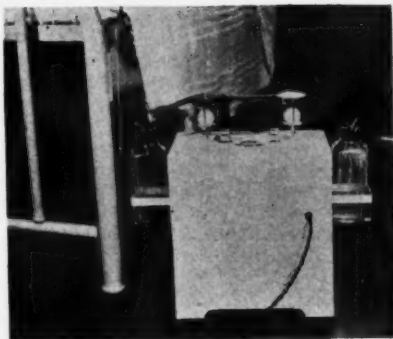


Fig. 3. Latest type of pump (Pratt) furnished by the hospital, which operates all Levine tubes in the hospital and has adequate energy to operate the Chaffin tubes. A water bottle device will not operate the Chaffin drainage of infected cavities.

that should be drained, in fact, there is hardly a field that does not at times require drainage to insure the patient against a possible infection complication, leaking viscus, or fluid accumulation.

This technique of Suction Drainage is the only safe method of treating existing infections, or preventing spread of an acquired infection. Suction drainage must be used to successfully remove non-infectious fluids, such as bile in gallbladder and duct surgery. In pancreatitis, it is the most valuable of all therapeutic techniques and will reduce the high mortality rate lower than any other existing therapy. In ruptured bladder, and kidney and ureteral surgery, it is the only means of removing this most dangerous and irritating fluid—urine. All large bowel anastomoses should be protected from and insured against leakage and infection.

How to Use Drainage by Suction

First, your hospital must provide you with two devices: (1) The special double barrel suction tubes (Chaffin tube) which permit of no suction on tissues, and continual circulation of air; (2) a suction pump capable of withdrawing a large volume of circulating air at a controlled low degree of suction (30" water). This pump is just as necessary as the suction you have in the operating room to use on the Poole tube.

In the operating room, when you have

finished what in your judgment is the proper surgical treatment of the lesion or field, place therein a Chaffin tube, or as many tubes as there are infected reservoirs (subhepatic, supra-psoas and pelvic), and close the incision snugly up to the tube, or in many instances, it is best to have tubes exit through stab wounds. Anchor all tubes to skin with silkworm sutures tied around one limb of tube. A silkworm or dermal suture through the skin (not between the limbs of the tube) and tied around one limb of tube will hold it in place. A bow-knot is best, then it can be loosened. Apply a small dressing with ends of tube exposed. Test all tubes with operating room suction to know they have no blood clots in the eyelets; attach the operating room suction to one limb of the tube and immerse the other in a cup of sterile water, observe the action and wash out clots. As soon as the patient reaches his room, attach a pump (we know of no other than the Pratt), to all tubes, including the Levine tube if indicated. We attach a saline drip to the open end of the Chaffin tube, and 5-10 drops per minute for several days will keep the tubes clean.

We untie the silkworm bow-knot and loosen the tubes in 24 or 48 hours by pulling up till they "let loose," then replace, and retie the silkworm suture.

After 48 hours a tube in a 4" or 5" cavity may be removed for cleaning or inspection (rarely necessary) and immediately replaced without difficulty.

Advantages

1. All secretion is in bottles and not on dressing.
2. Only minor dressings are necessary.
3. There is no odor.
4. Early recovery, little wound infection, no resultant hernia.
5. Less ileus.
6. Less nursing time.
8. A greatly lowered morbidity and mortality.

Our statistical study of large and small hospitals shows a greatly lowered mortality for peritonitis. In the California Hospital of Los Angeles, there were no Suction Drainage peritonitis deaths for four years but many in the other group

who used all other conventional treatment that is standard throughout the country. It may be for all hospitals, including Veterans Army and Navy, to secure statistics on the subject in their own institutions or do research on a number of cases.

In closing, I will ask my readers to please refrain from ever again using the word drain, when a vent or wick is meant. That will give them their correct name. It will also explain the deaths when wicks were used instead of drainage. It now appears that infection deaths are reduced about 80% over all other methods. This percentage will increase in proportion to the increasing use of drainage instead of venting, and as rapidly as hospitals and surgeons change over to real drainage.

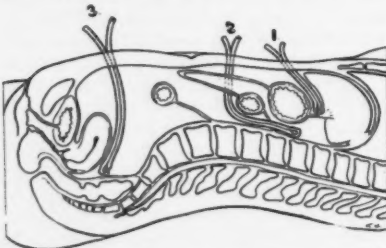


Fig. 4. Shows location of suction drainage tubes in draining abdomen with acute pancreatitis. (1) liver space, (2) lesser peritoneal cavity. (3) pelvic drain. Suprapsoas reservoir may also be drained by other tubes through stab wounds if these are found to contain peritoneal fluid. One limb of each tube is attached to pump for suction.

NOTE: Since preparing this article, some new information is available. The study of the statistics of our 400-bed hospital shows the mortality from appendicitis in the past year to be zero. We believe this is a new record and certainly lower than any other statistics we have seen. Suction Drainage has been a very important factor in this reduced mortality.—R. C. CHAFFIN, M.D.

In 1941 and 1942 the total infection mortality at the California Hospital ran as high as 25 or 30 cases; in 1945 the total number was 9 showing the marked reduction in the over-all deaths with the increased use of real drainage.

Analyzing these nine cases, it is difficult to determine which one might have died had they had adequate drainage as none of them were suction drained. From this, we believe it possible to reduce this type of mortality almost to zero in any hospital.

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1137 S. Westlake Ave.

Macrocytic Anemia of Infancy

Macrocytic anemia of infancy occurs in infants from two to twelve months of age who have been receiving an adequate diet. There is a short history of vomiting, loss of appetite and pallor, preceded by signs of upper respiratory infection and fever. Usually a slight enlargement of the heart and a soft systolic murmur are present. The spleen is often moderately enlarged and firm. Blood examinations reveal severe macrocytic

anemia accompanied by moderate to severe decrease in blood platelet count.

Treatment: Five mg. of folic acid concentrate or lacto bacillus casei factor are given daily by mouth. There is a rise in the reticulocyte count on the third and fourth day followed by a steady rise in hemoglobin values and red blood cell counts with normal hemoglobin being obtained in three weeks. The platelets also become plentiful within one week. Clinical symptoms disappear as the blood picture improves. *J.A.M.A.*, May 25, 1946.

Infectious Mononucleosis

By CHARLES D. MARPLE, M.D., Los Angeles, California

INFECTIONOUS mononucleosis is an acute infectious disease which is probably caused by a filterable virus.

It may be manifested by one or more of a multitude of symptoms and signs, of which the most common are generalized or localized lymph-adenopathy, splenomegaly, an acute pharyngitis or tonsillitis, and a marked degree of malaise.

Less frequent are cutaneous rashes, abdominal symptoms, jaundice, and, rarely, a variety of bizarre manifestations appear. There is a relative lymphocytosis which is accompanied by the appearance in the blood smear of the abnormal lymphocytes typical of this disease. Finally, a positive heterophile antibody test is ordinarily obtained during the course of the illness.

The disease is of particular interest to the medical profession because of the frequency with which the diagnosis is either overlooked or delayed and because, despite a clinical knowledge of the disease for over sixty years, the etiological agent is as yet undiscovered, the fundamental pathology of the disease is obscure, and there is no effective specific therapy.

Historical Notes

The earliest clinical description was apparently by Filatow (1885), who described an idiopathic adenopathy in children. Pfeiffer (1889), presented a thorough clinical description of the disease under the title of "Drusenfeber" (Glandular Fever). West, in the first American paper (1896), described 96 cases of an infectious mononucleosis epidemic among children in Ohio. Terfinger (1908) first reported adult mononucleosis. Burns (1909) was the first to notice an increase in the small mononuclear elements of the blood.

The next significant paper was that by Sprunt and Evans (1920), who applied the term "Infectious Mononucleosis" to patients exhibiting adenopathy, splen-

omegaly, symptoms of an acute infection, and a mononuclear leukocytosis.

Later Tidy and Morley (1921) correlated the identity of infectious mononucleosis and Pfeiffer's "Glandular Fever." Downey and McKenlay (1923) reported the hematological changes in great detail.

The final important observation was the fortuitous discovery by Paul and Bunnell (1932) that the serum of patients with infectious mononucleosis contained antibodies against sheep erythrocytes in titers far above the normal. Bernstein's comprehensive monogram (February, 1940; "Medicine") reviews all of the important papers published on infectious mononucleosis prior to that year.

Distribution

Infectious mononucleosis is primarily a disease of children and young adults, but cases in all decades of life have been reported. The sex incidence favors the male, 3 or 2. The disease does not have a racial predilection. Prior to 1941 it was thought to be rare in the negro, but subsequent reports of cases in the colored race suggests that the discrepancy previously noted may be more apparent than real.

Infectious mononucleosis occurs throughout the world and the reporting of cases from various areas seems to parallel the volume of medical literature emanating from these areas. The seasonal incidence is undetermined. There is no evidence that occupation plays a role in the occurrence of infectious mononucleosis. Earlier reports showed a preponderance of cases occurring in epidemics in hospitals, schools, colleges, and military establishments, but more recent papers indicate that a large number of sporadic cases occur in endemic form.

Clinical Picture

The classification of infectious mononucleosis into types is difficult because of the many and varied manifestations.

Tidy divided his cases into anginose, febrile and glandular, according to whether pharyngeal symptoms, the fever, or adenopathy predominated. These are undoubtedly the more common types, but there are additional varieties which are encountered not infrequently.

Accidental Discovery

Subclinical cases are discovered fortuitously when a leukocyte count is performed on the blood of a person who exhibits neither the signs nor the symptoms of infectious mononucleosis (e.g., upon admission to a hospital for an unrelated condition, during the course of a routine physical examination, or on "contacts," during an epidemic of infectious mononucleosis) demonstrates the relative lymphocytosis and the appearance in the stained blood smear of abnormal lymphocytes characteristic of the disease.

Weakness

The asthenic type of case complains of weakness, fatigability and malaise, but presents no significant fever, pharyngeal symptoms or appreciable adenopathy. The diagnosis is suggested by slight generalized adenopathy and splenomegaly and is confirmed by the characteristic changes in the blood count and by the presence of a positive heterophile antibody test.

Abdominal Type

In the abdominal type of infectious mononucleosis, the presenting complaint is abdominal pain, frequently of such severity and localization as to suggest appendicitis, or some intra-abdominal surgical emergency. Icterus may be presenting compliant in infectious mononucleosis, or it may be a secondary manifestation, appearing before, at the same time as, or shortly after the appearance of the adenopathy, splenomegaly and typical blood changes.

Hepatitis vs. Mononucleosis

An important differential diagnosis is that between the icteric type of infectious mononucleosis and acute infectious hepatitis which may, especially in its early stage, exhibit icterus with fever, adenopathy, splenomegaly, leukopenia, relative lymphocytosis and the appearance in the blood smear of typical lympho-

cytes similar to those seen in infectious mononucleosis. Heterophile antibodies do not, however, appear in the blood of patients with acute infectious hepatitis at any stage of the disease.²

Onset

With the onset of the disease, patients complain of the following symptoms, singly or in a variety of combinations: Headache, vertigo, malaise, chills, fever, nasal discharge or plugging, sore throat, swollen or painful glands, productive or non-productive cough, thoracic or abdominal pain, weakness, and night sweats. One must conclude that the only consistent finding in regard to the earliest symptoms is extreme variability and frequent multiplicity.

Throat Findings

In our experience the majority of cases have a pharyngitis or a tonsillitis which may be follicular, ulcerative or purulent in type. Gingivitis of the Vincent type and tonsillitis is encountered frequently. In some series of cases involvement of the throat has been unusual. A conjunctivitis of a specific nature has been described by a few observers, but is not a widely recognized feature of the disease.

Lymph Nodes

Involvement of the glands may be generalized, or localized to a single group of lymph glands. The glands are ordinarily only moderately enlarged and moderately, if at all, tender. They are occasionally massive in size so that, in the case of cervical gland enlargement, the neck is distorted as by a lymphoblastoma. Although the glands may occasionally be exquisitely tender, they do not suppurate. The endocrine glands and the salivary glands are not involved. Respiratory complaints may suggest pulmonary involvement but pneumonitis is rare. Cardiovascular manifestations are rare.

Rashes

A variety of cutaneous rashes have been described, including scarlatiniform, morbilliform, urticarial and erythema nodosum or multiform. In our experience rashes are infrequent and confusing rather than diagnostic.

Abdominal Pain

Abdominal symptoms occur more frequently than is generally recognized and abdominal pain sufficiently severe and so located as to simulate appendicitis has resulted in an occasional unnecessary appendectomy.

Jaundice

An obstructive type of jaundice occurs not infrequently, but it is not evident whether the jaundice is the result of the obstruction of the common bile duct by enlarged abdominal lymph glands, or whether it is due to an associated hepatitis.

Enlarged Spleen

Splenomegaly is a common and important diagnostic finding. Ordinarily the spleen is enlarged so that the tip can be felt just below the costal margin.

Headache, vertigo, painful and stiff neck and other symptoms suggesting central nervous system involvement are encountered frequently, but rarely are they accompanied by neurological findings, or the occurrence of spinal fluid abnormalities.

Fever

The temperature curve varies widely and, in cases with pharyngitis or tonsillitis, is not unlike that of an ordinary bacterial respiratory infection. However, patients without pharyngitis, tonsillitis or other evident bacterial infection frequently run a hectic temperature of 102 to 104 degrees daily for a period of a few days to several weeks.

Duration of Attack

The duration of an attack of infectious mononucleosis is variable. The majority of cases with tonsillitis or pharyngitis respond less rapidly to sulfonamide or penicillin therapy than do simple infections of the throat. Many such cases relapse despite prolonged chemotherapy and supportive care. We have observed one such patient who suffered five recurrent attacks of tonsillitis despite such intensive care. Many patients who recover promptly from the acute illness will exhibit periods of vague weakness and malaise for as long as one to six months. Abnormalities of the blood smear, usually in the nature of a per-

sistent lymphocytosis, may persist for a period of weeks or even months.

Heterophile Test

A positive heterophile test is not essential to the diagnosis for a few cases will fulfill all other diagnostic criteria without developing a positive heterophile test. The heterophile test may not become positive until late in the course of the disease and tends to remain positive for a period of weeks, although we have seen cases in which only one of a series of tests was positive.

Sequelae

Infectious mononucleosis is not highly contagious for, despite the constant flow of cases of infectious mononucleosis through a respiratory ward, infection of staff members is uncommon. Fatalities are extremely rare and occur ordinarily because of some complication, such as the dramatic spontaneous rupture of the spleen.³ The occasional sequelae are those which may complicate any respiratory infection and are not peculiar to infectious mononucleosis.

Laboratory

Alterations in the circulating leukocytes are characteristic of the disease. In the presence of an acute tonsillitis or pharyngitis the total leukocyte count and the percentage of neutrophils may be increased initially, but in cases uncomplicated by bacterial infection and in cases where such infections have subsided the total leukocyte count is ordinarily normal and the percentage of neutrophils falls to 5-30%.

The range of variation in the total leukocyte count is great, however, and counts of 2000 to 60,000 cells have been reported. The mononuclear cells are characteristically elevated to 70 or 90% of the count. With the increase in the mononuclear elements, abnormal types of lymphocytes, as described Downey, are seen in the smear.

In general the changes in these cells are: Irregularity in the shape and in the size of the cell, variability in the staining of the cytoplasm with appearance of vacuoles and stippling, lobulation of the nuclei, appearance of a nucleolus, derangement of the chromatin

network, and fenestration of the nucleus. Ordinarily there is no anemia, thrombocytopenia or altered blood coagulation although, in rare cases, hemorrhagic and purpuric phenomena have been described.

False Positive Wassermann Tests

If blood Wassermann tests are done routinely and serially during the course of the disease a positive result is obtained transiently in about 10% of the cases.

Heterophile Antibody

The heterophile antibody test is an extremely important diagnostic aid since a positive test in high titer is absolutely diagnostic. In cases where the heterophile is positive in low titer only, or where horse serum has been given the patient recently, the presumptive test can be confirmed by the differential absorption of the heterophile antibody by ox-red blood cells and guinea pig kidney.⁴ We have observed that the cold agglutination test is frequently positive early in the disease. This observation has a two-fold interest; it supports the theory that infectious mononucleosis is produced by a virus and serves as a diagnostic aid in cases which do not develop a positive heterophile test early in the disease.

Differential Diagnosis

There are five groups of diseases which must be considered in the differential diagnosis of infectious mononucleosis: 1) blood dyscrasias, especially lymphatic and monocytic leukemia and to a lesser extent agranulocytosis and thrombocytopenic purpura; 2) Conditions producing sore throats, namely, follicular or ulcerative pharyngitis or tonsillitis, Vincent's gingivitis or tonsillitis and diphtheria; 3) Diseases producing glandular swelling, including mumps, syphilis, tuberculosis, granuloma inguinale, tularemia, dengue fever, pertussis and Hodgkin's disease; 4) Cutaneous eruptions such as measles, scarlet fever, chickenpox, erythema nodosum, erythema multiforme and urticaria; 5) A heterogeneous group, the majority characterized by a septic course, including typhoid fever, undulant fever, malaria, rheumatic fever, bacterial endocarditis, pneumonia, acute in-

fections of the nervous system, the acute abdomen, catarrhal jaundice, nephritis, serum sickness, nasopharyngitis, influenza and epidemic hepatitis.

Etiology and Pathology

Some early observers felt that infectious mononucleosis represented, not a separate disease, but a specific abnormal response of the body to a variety of infectious agents. Such a view has not been entirely discarded. The bacterial flora of the throat in cases of infectious mononucleosis does not differ from that seen in the throat of persons suffering from acute tonsillitis and there has never been convincing evidence that any of the organisms cultured from the throat have any etiological significance.

Listerella monocytogenes hominis has been obtained from the throats and glands of patients suffering from infectious mononucleosis and has been used to reproduce a mononucleosis-like condition in rabbits, but it is now felt that there is no relationship between this organism and the disease in man.⁵ Bland's conclusion that the protozoan, toxoplasma, was the cause for infectious mononucleosis has not been confirmed. The present view, supported by the clinical and hematological manifestation of the disease, is that infectious mononucleosis is produced by a filterable virus.

The pathological features of the disease are poorly understood since the low fatality rate has provided little autopsy material. Examination of excised tonsils, lymph nodes, spleen and bone marrow has uniformly revealed hyperplastic changes with an increase in lymphocytes and the appearance of abnormal cells similar to those in the peripheral circulation. Ziegler's case³ demonstrates the previously unreported fact that changes occur in the parenchymatous organs (liver, kidneys and lungs) as well as in the lymphatic system.

Therapy

The treatment of infectious mononucleosis is not satisfactory. The sulphonamides and penicillin are effective in controlling associated infections of the throat, although the response of such infections is not so rapid as in the absence

of infectious mononucleosis. That the course of the infectious mononucleosis is not altered by chemotherapy is reflected by the prolonged asthenia, the persistent hematological changes and the positive heterophile antibody test. The use of scarlet fever convalescent serum has been reported by Berkley⁶ in a few cases, but his results have not been confirmed. Lassen and Thompsen⁷ treated 12 patients with specific convalescent serum and ran control groups of patients treated with non-specific serum, nearsphenamine, or symptomatically only. They report that specific convalescent serums in doses of 60 to 300 cubic centimeters intravenously brings rapid improvement in general, more rapid fall of temperature to normal and marked subjective improvement within one to two days after administration. This promising study has not been corroborated, but suggests that further use of specific convalescent serum under controlled conditions is indicated.

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Advances in Therapy

Advances in therapy are demonstrated by a comparison of the drugs considered of greatest importance by a group of physicians in 1910 with a similar group selected by professors of medicine in leading medical schools in 1945. The two lists follow:

1910

Ether
Morphine
Digitalis
Diphtheria Antitoxin
Smallpox vaccine
Iron
Quinine
Iodine
Alcohol
Mercury

1945

Ether and other anesthetics
Morphine, cocaine and barbiturates
Digitalis
Immunizing agents and specific antitoxins and vaccines
Liver extract
Quinine and quinacrine
Insulin
Hormones and vitamins
Arsphenamines, Antibiotics and sulphonamides
Whole blood, plasma and other blood derivatives.

It is to be noted that four agents, iron, iodine, alcohol and mercury have disappeared from the list and that ether, morphine, diphtheria antitoxin, smallpox vaccine and quinine have been submerged in widely expanded groups to which they belong. Completely new are liver extract, insulin, hormones and vitamins, arsenicals, the antibiotics and sulphonamides and blood and its fractions. Only digitalis remains unchanged and this too could be modified in favor of the purified glucosides which are receiving increased attention.

Body Section Roentgenography*

By BERNARD S. EPSTEIN, M.D.* and MAX KULICK

Brooklyn, New York

BODY section roentgenography is a special technic whereby preselected planes within a structure may be studied to the exclusion of the regions above and beneath. This requires special apparatus which provides opposite motion of the roentgenographic tube and the cassette carrier in fixed ratios. The depth of the layer to be examined may be selected by varying the ratio of motion. The most accurate and elaborate apparatus is the Kieffer laminagram. Where it is not possible to obtain the use of this, satisfactory laminagrams may be made with a variety of appliances which can be attached to standard horizontal

roentgenographic tables and tube stands at minimal expense (1).

The clinical applications of laminagraphy are manifold, and much important information may be acquired. Body section roentgenography does not displace routine roentgenography in any sense of the word, but rather supplements and adds to the information available from routine examinations.

References

(1)—Alexander, G.H. "A Simple and Inexpensive Tomographic Method." *Am. J. Roentgen & Rad. Ther.*, 1938, 39, 956-958.

Wheeler, D. and Spencer, E. W. "Simplified Planigraph," *Radiology*, 1940, 34, 499-502.

*From the Department of Radiology, The Jewish Hospital of Brooklyn, Brooklyn, N. Y.



1a



1b

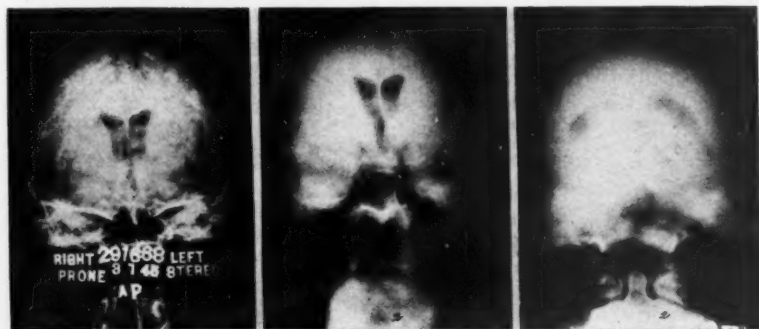
Fig. 1a is the roentgenogram of a fracture of the fourth metacarpal bone after reduction and application of a plaster splint. The alignment of the fracture fragments is difficult to evaluate on the direct lateral study, but the laminagram (Fig. 1b) clearly portrays the fracture by eliminating the shadows of the adjacent bony structures as well as those of the cast.



2a

2b

The application of laminagraphy to the roentgenographic study of the skull. Fig. 2a shows a lateral encephalogram. The impression into the right frontal horn is well seen on the direct study, but the calcification in the base of the meningioma springing from the tuberculum sellae is far better visualized on the lateral laminagram (Fig. 2b).

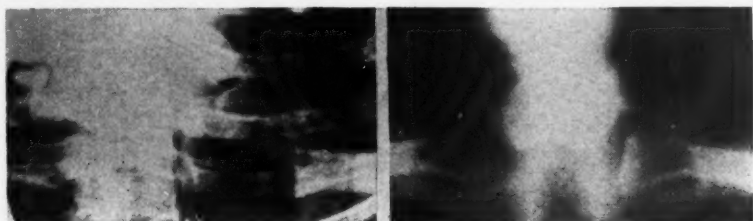


3a

3b

3c

Fig. 3a shows a routine anteroposterior roentgenogram of the skull after pneumencephalography. The sphenoidal sinus and the odontoid process as well as the articulation between the occipital condyles and the first cervical vertebrae are far better visualized on the laminagrams (Figs. 3b, 3c).



4a

4b

Fig. 4a is a laminagram of the heads of the clavicles. The patient was considered to have some sort of a bony swelling, but its exact nature was not decided until the laminagram showed the elevation of the right clavicular head secondary to an old traumatic subluxation. The direct studies (Fig. 4b) were not as conclusive.

The application of laminagraphy to chest roentgenography is very well known.

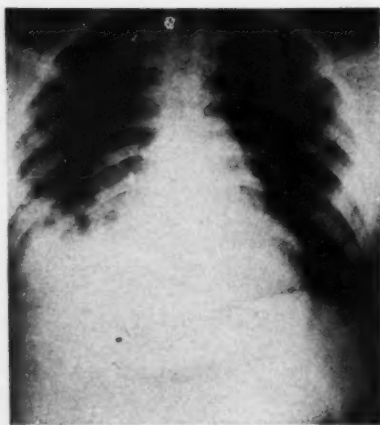


5a

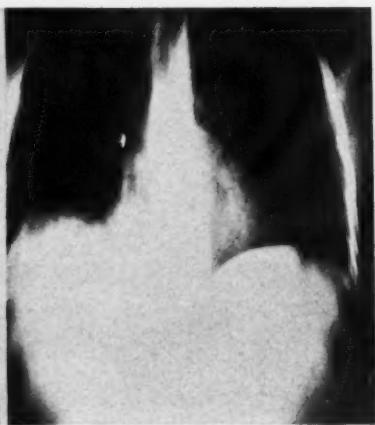


5b

Fig. 5a is the roentgenogram in the anteroposterior projection of a fracture of the patella. The laminagram (Fig. 5b) visualizes this more sharply by eliminating the shadow of the tibia, fibula and femur to a major degree.



6a



6b

Fig. 6a is one example in which its importance is evident. The opacity at the right base was considered for some time to be an unresolved bronchopneumonia with bronchiectasis. Closer inspection of the films showed a dense object in the neighborhood of the descending bronchus as it passes from the right main bronchus. On the laminagram (Fig. 6b) this is seen to be a corroded thumb tack. Reproduction of this film was difficult. On the original film the narrowing of the bronchus at this site is readily apparent, and the foci of necrotization in the lung distal to the obstruction can be clearly demonstrated. The tack was removed in pieces through the bronchoscope.

Shock

By FREDERICK M. ALLEN, M.D., New York, N.Y.

THE SUBJECT of shock has been revolutionized, so that the facts as now understood are diametrically opposite to the statements of existing textbooks on most cardinal points of both theory and therapy. I claim priority in most of these advances. The following ten innovations will be summarized with reference to their origin and development. This history will be found different from the impressions created by writers of the dominant school, but it can readily be verified from the literature.

Shock Mechanism

Instead of the traditional dispute over physical or toxic explanations of shock, in 1931 I suggested a dual mechanism. The *physical mechanism* is proved by instances in which the fluid exudation and depletion of circulation are a sufficient cause of death, and by the success of fluid replacement treatment.

It was also apparent that shock, especially in its severest and most rapidly fatal forms, may cause death with less degrees of fluid loss and also in spite of fluid replacement maintaining circulatory volume from an early stage. The toxic factor is evidenced by recent transfusion experiments and especially by the direct demonstration (Chambers and others) of circulating substances which display specific effects on blood vessels. It therefore appears to be established that shock is a mixture of these two components, and their relative proportions may help to explain symptomatic differences between individual cases and also the different responses to treatment.

Extremity Constriction

The occurrence of shock following prolonged constriction of an extremity had been known clinically and also in a few laboratory experiments. My reason for adopting and standardizing this method was to obtain the purest possible form of shock, as free as possible from the complications which trauma commonly introduces into the picture of shock. Hemorrhage, infection, and special intoxications in such conditions as burns and

crush injury must be regarded as separate from shock in nature, and the treatment of the shock and the complication must also be viewed separately.

Immunization Against Shock

Immunization against shock was unsuccessful in my original attempt under adverse conditions, but the identical method was adopted successfully by Green and Bielchowsky. The result has been confirmed by all subsequent workers. According to the latest findings of Rosenthal, the increased resistance is local; i.e., it is manifest when a second trauma is inflicted on the same region as an earlier trauma but not when a different region is injured. Also, as the resistance is not due to reduced exudation, the evidence of an additional mechanism in shock is strengthened. There is no known practical application of this phenomenon except the apparent value of rough exercises in toughening soldiers against shock.

Capillary Permeability

The abnormal increase of capillary permeability in injured regions has long been familiar, but the prevailing doctrine at the time of my work was that shock involves a general increase of capillary permeability throughout the body, also. Opposed to this view were my observations that large intravenous injections of plasma or salt solution produce correspondingly large increases of the exudation in injured regions but no perceptible exudation elsewhere; also that no such exudation is produced by the injections in hemorrhagic shock. This absence of general increase of capillary permeability in shock has been confirmed by investigators using radioactive and other traceable injection materials.

Use of Cold

My experience, showing inhibition of shock by reduction of temperature of the injured parts was the first break in the immemorial tradition of treatment by warmth. The benefit of a slightly reduced bodily temperature was first noticed by Temple Fay, in clinical obser-

vations begun in 1940 and announced in 1942. Abundant and unanimous experimental evidence now has established the benefits of both local refrigeration and slight reduction of bodily temperature as beneficial in shock, even to the extent of saving life in certain cases.

Incidentally, the treatment by local compression of injured regions, which was introduced by Patey and Robertson in England in 1941, is also recognized as life-saving in some instances, though at the same time it involves some added dangers of necrosis of poorly nourished tissues and incubation of bacteria. The combination with refrigeration can obviate these dangers while adding the direct benefits of cold.

Irreversible Shock

A universally accepted tradition has been that shock in its most extreme or advanced form is irreversible; i.e., that hypotension, anoxia or other component factors of shock become inevitably fatal at a certain degree or stage. This tradition rested essentially upon the failure of treatment with plasma or blood transfusion. Its essential falsity appeared in my demonstration that dogs even in the act of dying from traumatic shock can be dramatically restored by large injections of salt solution, so that they live 12 to 30 hours longer.

The Levine-Soskin group subsequently brought confirmation in the form of permanent recovery of animals from the shock, by the use of solutions of certain sodium salts in addition to transfusion. The hopelessness of the most extreme shock states must still be admitted; but the striking capacity for temporary recovery shows that the trouble is not a mere "irreversibility" but a lack in the treatment, especially the lack of an antidote for the toxic factor.

Fluid Equilibrium

A universal therapeutic misconception has been that the abnormally permeable capillaries in injured regions pour out an endless exudation of plasma-like fluid, necessitating replacement by plasma or some other colloid solution which will resist diffusion and remain in the blood vessels. This is a crude misconception of the obligatory edema of injured tissues. My experiments showed that when the specific tissue need for

salt and water, created by this inflammatory swelling, is satisfied by adequate fluid supply, equilibrium is restored and the circulatory volume is maintained, even if the administered fluid be simple salt solution. This equilibrium is subject to alteration by additional fluid injections, with increased exudation, but not spontaneously. Fox and others have recently demonstrated that the protein of inflammatory exudates is not derived essentially from the plasma but from local tissue proteins.

The teaching that the benefit of physiologic saline solution is only ephemeral or illusory, because any such crystalloid fluid leaks rapidly out of the blood vessels, found even stronger application in hemorrhage than in shock. The emphasis upon plasma colloids for maintaining circulatory volume, even in preference to red corpuscles, was one of the series of errors of the official Shock Committee of the first World War. My experiments, showing that saline infusions can be life-saving within very wide limits, even in hemorrhage, have been confirmed. A further illustration of the ability of salt solution to maintain circulatory volume is the proof by the McKee-Nicholl group that a suspension of red cells in saline is superior to plasma for hemorrhage. (This would seem to prove only that red cells are effective.—Ed.)

The highly variable increase of blood potassium in the late stage of some shock cases served as the basis of a potassium intoxication theory which received much attention, in spite of the elementary fact that potassium kills by poisoning the heart and death in shock is never due to heart failure. Experimentally, I showed that saline injections, which produce such a spectacular revival of animals dying from shock, have no effect upon an animal dying of potassium poisoning.

Adrenal Therapy Useless

There was a similar complete lack of foundation for the speculations concerning adrenal cortical deficiency in shock and the widespread treatment with adrenal cortex preparations. I called attention to the simple neglected fact that the altered vascular permeability in shock is expressed in a migration of water

and salt from the blood into the tissues, with inhibition of diuresis, while in adrenal cortical deficiency the change of permeability is in the opposite direction; namely water and salt pass from the tissues into the blood and out through the urine.

Physiologic Saline vs. Plasma

My experiments were the first to contradict the colloid theory and plasma therapy of shock, which had ruled undisputed with support of combined academic and official authority since the first World War. Physiologic saline solution has advantages over plasma, in that it is more easily and abundantly available and is tolerated safely in far larger volumes, thus supplying most efficiently the specific tissue need for water and sodium salts. There is no specific need for protein or colloids in shock, though the frequency of hemorrhage or other complications may make it desirable to give a small proportion of the fluid in the form of plasma or preferably whole blood. These facts published in 1939, before the outbreak of war, have been confirmed so conclusively that the official Shock Committee was finally compelled to advise treatment by this method, in the Journal of the American Medical Association (June 16, 1945). This statement, just after the close of the German war, was completely silent concerning the diametrically opposite position taken by the same authorities in the instruction manual issued by

the National Research Council in 1943, in the midst of war. There can be no doubt that the advocacy of plasma and prohibition of saline was responsible for many unnecessary deaths in war and peace from 1915 to 1945.

One purpose of this writing is to illustrate the evils of centralized organization and control of research, which is being increasingly advocated by powerful propaganda. I have mentioned elsewhere the bureaucratic opposition which prevented adoption of refrigeration surgery by the Army or Navy, until near the end of the war both the feasibility and the benefits were demonstrated through the initiative of individual medical officers.

Likewise it is noticeable that the present treatments of shock, namely by saline administration, local pressure, and local or general temperature reduction, are all of independent origin. The large organization and expenditures of the official Shock Committees in both World Wars failed to produce a single new therapeutic idea. On the contrary, the rigid dogma of plasma treatment and of the harmfulness of saline, especially during many years when plasma was scarce, and the above-mentioned opposition to the development or adoption of refrigeration surgery, have unquestionably been responsible for needless large-scale losses of life and limb, and this official culpability has been concealed in the literature. This is the important lesson, now when the future organization of American medicine is to be decided.

COMING ARTICLES

The Problem of Obesity

Roentgenology in Obstetrics

Errors in General Practice (Symposium)

Conservative Treatment of Frontal Sinusitis

Diagnostic and Therapeutic Pointers on Malaria

Iron Deficiency Anemias

Sexual Deficiency (Graduate Course)

The Treatment of Cholelithiasis

By C. A. BACHHUBER,* M.D., F.A.C.S.

Los Angeles, California

REGARDLESS of one's personal views relative to surgical treatment of acute cholecystitis there are certain pertinent facts regarding the mortality of this disease that we all must recognize.

First: is the fact that *there are no harmless gallstones*. Gallstones when present, whether solitary or multiple, will sooner or later produce an irreversible pathological process from which the patient frequently will not survive even though surgical procedures are instituted.

We must be appraised of the fact that the longer the patient suffers from this disease, the older he becomes and the greater the mortality rate; for with advancing age the patient usually suffers from some concomittant disease particularly of the cardiovascular system which frequently is responsible for the patient's demise.

The belief that the so-called solitary type of stone is a harmless intruder within the organism must also be corrected. This stone which is often referred to as symptomatic and therefore harmless, is usually responsible for the most vicious gallbladder lesion—perforation. These stones are usually impacted in Hartman's Pouch which is located in the ampullary portion of the gallbladder near the cystic duct. The stone occludes the cystic duct resulting in a hydrops of the gallbladder. Due to interference with the circulation to the gallbladder, an acute inflammatory lesion is initiated which leads to gangrene and perforation, followed by death of the patient unless surgical procedures are instituted at the proper time.

Further, this type of surgery is of such an emergent character that a cholecystostomy is usually all that can be performed, necessitating a cholecystectomy at a later date, if the patient is to be cured from the disease.

*Assistant Professor of Surgery, College of Medical Evangelists.

Second: A patient recovering from repeated attacks of gallstone colic and acute cholecystitis always is under the impression that because he has survived the original attack he will continue to recover from the succeeding attacks of this disease.

If patients are taught that gallstone disease is surgical just like appendicitis, and that the diseased organ should be removed at the opportune time, then and only then, will there be a marked reduction in the mortality of this disease.

Third: The mortality from carcinoma of the gallbladder is approximately one hundred percent. That stones are present in at least sixty percent or more of carcinomatous gallbladders is a recognized fact. Consequently, if the morbidity of carcinoma of the gallbladder is to be reduced, the gallbladder with its contained stones must be removed at the opportune time after the diagnosis of cholecystic disease is established.

After analyzing a large number of deaths from surgical diseases of the biliary tract, we find that approximately 56 percent die from the medical treatment and approximately 44 percent from the surgical treatment. We are all agreed that the treatment of cholecystitis and cholelithiasis is surgical. Consequently one wonders why over one-half the deaths are due to an inappropriate type of treatment. Further, the percentage of surgical deaths would be tremendously reduced had the surgical treatment been instituted at a proper time.

The following are a few case histories which exemplify the statements previously made:

Case No. 1.

This patient had recurrent attacks of gallstone colic for 15 years but was treated medically until the day of admittance to the hospital; at this time the pathological process had apparently started on its irreversible course.

Her condition upon admittance was of such severity that the surgeon re-

fused to operate. The patient died the following day and the autopsy disclosed cholecystitis, cholelithiasis, rupture of the left bile duct, and lung abscess.

Certainly had surgical procedure been instituted at any time before the last episode the patient's life would have been spared.

Case No. 2.

The patient had her original attack of acute cholelithiasis five years previous to her present admission. She was admitted for emergent surgical care of an acute, infected hydrops of the gallbladder. However, upon admittance, it was noted that this patient was suffering from hypertensive vascular disease. A cholecystectomy was performed but the patient expired 10 days post-operatively, the autopsy disclosing cardiac decompensation as the cause of death.

Now from a surgical standpoint it is possible that had a cholecystectomy been performed the patient may have survived—but more important, had the operation been carried out five years earlier the patient may have survived many years.

Case No. 3

The patient was admitted to hospital in coma. Fifteen years ago she had gallstones removed but the gallbladder was not removed for an undetermined reason. Soon after her operation, her old symptoms returned and she was treated at various intervals until her present admission to the hospital. Her physical condition was of such gravity that surgical procedures were not instituted and the patient died the following day.

The autopsy disclosed a generalized peritonitis secondary to a perforated gallbladder due to gallstones.

This case history stresses the fact that if possible a cholecystectomy should always be performed, and in the event a cholecystostomy has been performed a cholecystectomy should be done upon return of the symptoms.

This again shows that the institution of the proper treatment at the appropriate time will prevent the serious complications causing death.

Case No. 4

This patient was admitted to the hospital for study of jaundice of eight months duration. Her condition in the hospital gradually deteriorated until her death 8 days after admission. In her history it was noted that two years previously the patient had had a typical attack of gallstone colic with jaundice which persisted for a few days.

Autopsy revealed a carcinoma of the gallbladder with metastasis to the liver. The gallbladder contained stones.

In this particular instance we must grant the possibility that had this patient's gallbladder been removed at the time of the original attack she might not have succumbed to carcinoma of the gallbladder.

Case No. 5

This patient was admitted to the hospital for an attack of gallbladder disease which failed to subside. She had had recurrent attacks for the past ten years.

The onset of the present attack was about six weeks previously. It failed to subside and once or twice daily she would have a chill followed by a high fever. After her admittance to the hospital she continued an irreversible course until she expired, 11 days after admittance.

Autopsy disclosed empyema of the gallbladder, chronic cholecystitis, cholelithiasis, septicemia, and pylophlebitis.

Here again had surgical procedures been instituted at the proper time this patient's life may have been spared.

Summary

In closing it can only be said that gallstones, regardless of type, are a surgical disease; and their removal is advocated at the appropriate time after the diagnosis is established.

1401 South Hope Street.

We submit that a doctor brought up as a perpetual resident with every luxury at his command and consultants ever at his elbow is no more fitted to be a professor of medicine or surgery than a monk would be to be a consultant on marital relations.—N. Y. State Journ. of Med., July, 1946.

Appendicitis II

(Graduate Course Symposium)

Early Diagnosis: Gas Stoppage

Gas stoppage is a sensation that occurs at the onset of about 8 out of 10 cases of acute appendicitis, and usually disappears with localization of the infection to the appendix. It occurs consistently at onset in only one other abdominal condition, namely, acute obstruction of the small intestine.

The sensation is referred to the midline, most frequently in the umbilical or epigastric areas.

The sensation begins gradually as a rule. It is vague and hard for patients to describe. It feels to them as if gas or something was stopped up inside of them. It feels as if passing gas or defecation might relieve them. Yet the sensation *persists* even if they can pass gas or defecate.

The feeling is a vague crampy gripe or ache, as if epsom salts had been taken but would not move the bowels, and had set up a kind of unrelieved pulling, tugging or rumbling. It is a tight, full or stuffed feeling. To some women, it feels like the crampy pains of menstruation. It may be an old fashioned bellyache that lasts unremittingly for hours and hours, which may be mild or severe.

It causes patients to think of taking laxatives. It makes them go sit on the toilet, often fruitlessly. It is a sickening urge to move the bowels which bowel movement fails to relieve. It is not nausea. It is a downward, not upward urge. It is a *symptom, not a physical sign.*

How To Recognize It

Three questions have been devised so that the physician may definitely recognize this symptom.

Question: 1. At the beginning, did it feel as if gas or something was stopped up inside of you? **Answer,** if gas stoppage is present: Yes, usually (occasionally, no).

Question: 2. At the beginning, did it feel as if passing gas or moving the bowels would have relieved the feeling? **Answer,** if gas stoppage is present: Yes.

Question: 3. At the onset, if you were able to pass gas or defecate, did this relieve the feeling *completely*? **Answer,** if gas stoppage is present: No.

—E. L. KEYS, M.D., St. Louis, Mo.

Differential Diagnosis

When high fever is present, with minimum local finding of appendicitis, urinary infection will be one of the most common explanations of the clinical picture.—WARREN H. COLE, M.D.

Diagnostic Errors

Failure to realize that acute appendicitis, uncomplicated, is very frequently unaccompanied by temperature or pulse increase.

Failure to realize that acute appendicitis can be accompanied by diarrhea or frequent stools.

Failure to realize that the signs and symptoms of acute appendicitis depend almost entirely upon the anatomical position of the appendix and, for this reason, many cases which apparently are atypical, because of the unusual location of the appendix, are not recognized until late in the disease.—B. S. CUSTER, Lieut. Colonel, M.C., Chief of Surgical Service, AAF Regional Station Hospital, Westover Field, Mass.

Diagnostic Errors

The most common error made by the average general practitioner is procrastination. When the doctor is called to see the patient there may have been a delay by the family in calling the physician, or the physician tells the family that the patient may have appendicitis and might have to have an operation. The family insists that the doctor be certain of the diagnosis, and too frequently

he will tell the family that he will watch the patient and come in in the afternoon or the following morning or some other convenient time. It is best to have the patient brought to the hospital immediately for observation and diagnosis, rather than keeping the patient at home and making the final diagnosis. (It is much easier to obtain operative consent with the patient already in the hospital than for the patient in the home. Editor.)

Diagnostic Errors

1. Too many diagnoses of "food poisoning." 2. Constipation considered as the cause for patient's signs and symptoms.—J. L. DONHAUSER, M.D., Albany Hospital, Albany, N.Y.

Diagnostic Pointer

A very high white blood cell count with minimal physical finds may be accepted as an aid to diagnosis and additional indication for operation. —A. STRAUSS, M.D.

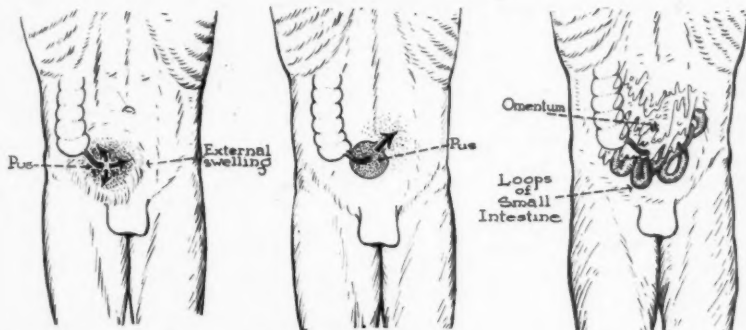
Position of the Patient

In acute appendicitis the patient lies quietly, appears slightly to moderately ill. If the patient thrashes around, one should suspect lesions of the kidney.

Rigidity of the right rectus muscle will be absent when:

1. Appendix is completely in the pelvis. (This may be confirmed by rectal examination.)
2. When the appendix lies between the coils of the ileum. (The history is commonly accurate in this instance.)
3. In some retro-peritoneal appendices, which, in their inflamed state, are not in contact with the peritoneum. Tenderness and spasticity in the flank is commonly present.

Pressure in left lower quadrant will suddenly leave after complete collapse of the bowel, is followed by pain in the right lower quadrant. It is practically pathognomonic. — WILLIAM W. CHASE, Lt. Col. M.C., Chief of Surgical Service, AAF Regional Hospital, Buckley Field, Colo.



Management of Appendiceal Abscess

If, during the delay following peritonitis, it seems to be localizing or if the patient develops a mass in the right lower quadrant, the question is: How long may delay be justified? I do not feel the abscess should be allowed to disappear spontaneously because:

(Fig. 1.) One cannot be sure that such an abscess will remain localized and disappear.

(Fig. 2.) There is a definite danger of its opening and spreading to the rest of the peritoneal cavity. (general peritonitis).

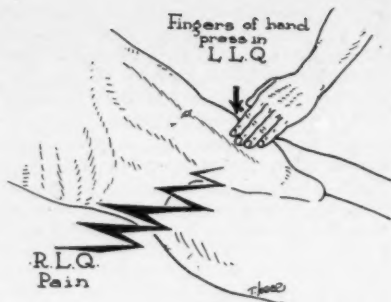
Fig. 3.) One cannot be sure that the localized mass is actually an abscess. The mass may consist of loops of small intestine and omentum which have become adherent to an acutely inflamed appendix which has not ruptured but might rupture at any time.—ROBERT ELMAN, M.D.

Appendicitis: Diagnostic Pointer

If pressure in the left iliac fossa causes pain in the right iliac fossa, the patient almost certainly has appendicitis.—**BARNEY BROOKS, M.D.**, Department of Surgery, Vanderbilt University Hospital, Nashville, Tennessee.

Diagnostic Pointer

Appendicitis pain is increased by coughing, sneezing or by having the patient jump on the right foot.—**HERBERT FRANKENSTEIN, M.D.**, Medical Arts Building, Pittsburgh 13, Pa.



Treatment of Acute Peritonitis

Removal of the appendix is the first step in treatment, except for those patients who are in such poor condition that they cannot stand an operation. Following operation, parenteral fluids should be given. A common mistake is to give glucose alone; this is worse than useless because it increases dehydration through transient diuresis. The fact that salt is just as important as water is often forgotten. It is often necessary to give 5,000 cc. initially and from 3,000 to 5,000 cc. of saline or Ringer's solution per day thereafter.

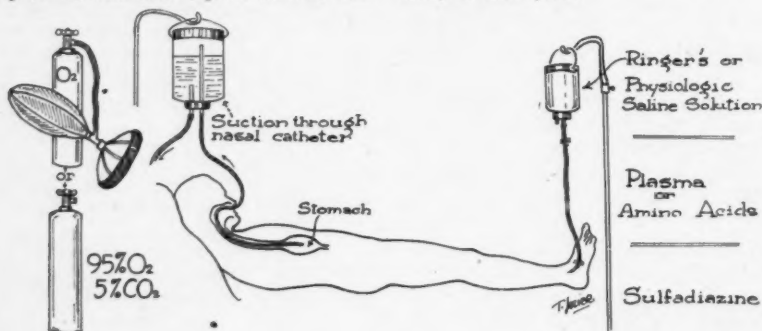
Plasma or amino acids may be given to relieve the low blood protein level. One can tell if the dehydration is being combatted if the red blood cell count gradually drops to normal and remains there and if the patient is putting out from 1,000 to 2,000 cc. of urine per day.

Oxygen inhalations are of real value in patients with severe peritonitis as well

as those with intestinal obstruction. The reason for this beneficial effect lies in the relief of anoxia, a defect which occurs in a great many very sick patients. It is usually unsuspected because there may be no signs of respiratory difficulty. Brilliant results may follow the inhalation of pure 95 per cent oxygen with 5 per cent carbon dioxide, given with the oxygen tent, which is best, the Boothby mask, or nasal catheter.

The sulfonamides are used, the sulfanilamide crystals being employed locally, and sulfadiazine solution given intravenously.

Gastrointestinal decompression is obtained by using a nasal catheter in the stomach. Sulfadiazine plus sodium lactate will keep the urine alkaline.—**ROBERT ELMAN, M.D.**, Department of Surgery, Washington University School of Medicine, St. Louis, Mo.



Diagnosis

History: Do not accept the patient's first wording for more careful questioning may reveal the fact that minor symptoms, such as the initial dull epigastric discomfort, may have been present several hours earlier.

Physical Sign: It is easy to tell the difference by palpation between the elastic type of tenderness seen in acute colitis as compared with the more stable tenderness, increasing with pressure, which is found when an acute appendix lies beneath. In colitis the tenderness may be superficial and not increased by deep pressure. In fact a firm steady pressure may almost feel good to one who has gas in a distended tender colon. In appendicitis pressure continues to hurt and in direct proportion to the force used. (This is our most valuable sign in the handling of children at the Children's Hospital).—J. NORRIS NICHOLS, M.D., 1930 Wilshire Blvd., Los Angeles 5, Calif.

Retrocecal Appendicitis

One of the most valuable signs in the identification of retrocecal appendicitis is the pronounced local tenderness posteriorly after exclusion of the urinary tract as the source of trouble.—WARREN H. COLE, M.D., Professor and Head of Department of Surgery, University of Illinois College of Medicine, Chicago, Ill.

The inflamed retrocecal appendix presents a diagnostic problem much more difficult than the usual case of acute appendicitis. Because the peritoneal surfaces are protected by the overlying cecum the classical tenderness and muscle spasm are not elicited.

The retrocecal position is the third most frequent one and is present in about 9% of all cases. *Early in the course of the disease these patients do not appear acutely ill and may be up and about.* An accurate history is the most important single factor in the diag-

Diagnosis

In the twenty per cent of patients whose symptoms are not typical, there is often a history of previous attacks. The alterations of symptoms may be due to the pathological changes taking place which involve the appendix, which interfere with sympathetic nerve reflex.—B. S. CUSTER, M.D.

Diagnostic Pointer

A history of loss of appetite is of definite importance. Many patients with an early acute appendicitis do not vomit nor are they necessarily nauseated, but they do have a definite anorexia. — EDWARD F. McLAUGHLIN, Lt. Col., Medical Corps, AAF Regional Hospital, Lincoln 1, Nebraska.

Diagnostic Pointer

Retrocecal appendicitis can be diagnosed by compressing the cecum between the left hand placed in the posterior lumbar space and the right hand placed in front of the abdomen. If retrocecal appendicitis is present, a soreness will be elicited in the lumbar space. — DAN C. DONALD, M.D.

Diagnostic Pointer

Spontaneous pain is the most important symptom; point tenderness is the most important sign. JOHN MORTON, M. D., University of Rochester School of Medicine, Rochester 7, New York.

The Retrocecal Appendix

The pain, if present, is usually dull or aching. Gastro-intestinal symptoms are apt to be very mild or entirely absent. The most suspicious symptom is pain or discomfort referred either to back, bladder or to the external genitalia. Red blood and pus cells in the urine are common findings, yet may only serve to confuse while the genito-urinary tract is being investigated. Occasionally a severe chill results when an inflamed appendix lies in apposition to the right ureter or iliac vessels. Leukocytosis is not to be considered a criterion in any case of appendicitis and

has no significance in this condition except in late cases in which the general symptoms appear mild; then, the finding of 15,000 to 30,000 leukocytes (per m.m. of blood) in a patient with only vague abdominal objective findings should immediately arouse suspicion of an acutely inflamed retrocecal appendix or a retrocecal abscess.

Examination will not reveal point tenderness either over McBurney's or any other point, and there may be surprisingly little pain on pressure over all parts of the abdominal wall. Maximum tenderness and muscle rigidity appear posteriorly but seldom extend to the costovertebral angle. Rectal examination contributes nothing to the diagnosis.

Differential diagnosis is difficult because of simulation of kidney, ureteral or gall bladder disease. In ureteral or kidney colic the pain reaches its maximum intensity soon after the onset, and the pain is out of all proportion to other findings. X-Ray examination may clinch the diagnosis. Pyelitis is characterized by high fever, chills and diaphoresis which are seldom found in appendicial inflammation. However, pus in the urine, lumbar tenderness and dysuria are present to some extent in this form of appendicitis. Atypical gallbladder symptoms present a confusing picture. When the liver is low or the gallbladder is enlarged the tenderness may be found far down the abdomen, and, conversely, a long retrocecal appendix may give pain and tenderness in the right upper quad-

rant. A history of similar previous attacks with indigestion, especially if they subside quickly, suggests gall bladder disease.

The most frequent and dangerous complications of retrocecal appendicitis is subphrenic abscess. A septic type of fever with X-Ray evidence of elevation of the diaphragm gives a clue to this condition.

Spivak's rule to determine whether one is dealing with a retrocecal appendix when difficulty is had in locating the organ at operation: "If the terminal part of the ileum is attached to the brim of the pelvis, then in 90% of all cases the appendix is retrocecal or retrocolic." When this condition is present it becomes necessary to mobilize the cecum and reflect it medially to expose the appendix. In exceptional cases a portion of the appendix will be actually embedded in the wall of the cecum. In these, the entire length of the appendix should be palpated first, then dissected free from the wall by incising the serosa on each side and then removed in the usual manner.

In removing the retrocecal appendix in the acute stage of inflammation nothing else should be done, but in the quiescent stage the operation should be supplemented by mobilization of the terminal ileum, restoring it to its normal anatomical position since the resultant kinking predisposes to intestinal obstruction.

—LT. COL. WILLIAM REED, M.C., in *J. Ind. S. Med. Assoc.*, Aug. 1944.

Post-Operative Complications

The failure of the temperature to subside rather promptly, with continued complaint of abdominal pain, the continued moderate to more than moderate extension of the abdomen are clinical symptoms which should call attention to the fact that the patient is not progressing satisfactorily and that repeated and careful examinations are necessary.

Infection in perforative appendicitis is prone to spread in two general directions—either upward along the course of a subphrenic abscess, or downward, with the development of a pelvic abscess or

the so-called horseshoe pelvic abscess. In general peritonitis, abscesses may form between the leaves of the mesentery and be present elsewhere than in the locations I have just mentioned.

The pelvic abscess is the most common and the most surely recognized by rectal or pelvic examination. I would suggest repeated rectal examinations in cases that are not progressing satisfactorily. Prompt drainage is imperative as soon as the diagnosis is made.—GEORGE J. HEUER, M.D., Surgical Department, New York Hospital, New York City.

EDITORIALS

New Subscription Rates

NEXT month, the subscription price of **CLINICAL MEDICINE** will be adjusted upward to take care of the many increased costs of production that have been made during the past few years. Rising prices are not new to any of us, but this is the first time in over 37 years that **CLINICAL MEDICAL** has had to take such a step. At the present time, it looks as though more increases will be forthcoming but, as far as we are able, the new prices will stay in effect for some time to come. However, as soon as the situation permits, the old rates will be re-established.

The new subscription price will be \$5.00 a year, \$8.00 for two years, or \$10.00 for three years. \$.50 per copy.

But we are not going to sit back and just raise prices. We are going to give you a better and better journal. Right now, the editor is working on a series of 18 pictorial "Clinicopathological Conferences" that are really something new in easy grasped and practical medical teaching. The printer has our plans for a new format—larger, more readable type, and a production schedule calling for 16 additional pages of editorial material. Our artist is now working on 52 pages of illustrative material in addition to what we now have on hand.

You will like the new **CLINICAL MEDICINE**, so watch for the changes to come early in the New Year.

The Placebo

The placebo "an epithet given to any medicine adopted more to please than to benefit the patient" has been rarely dis-

cussed in modern literature and is rarely given.

O. H. Perry Pepper, Professor of Medicine, University of Pennsylvania, wrote an interesting note on this topic, (*Transactions of the College of Physicians, Philadelphia, Pa., June 1945*). He asked, "Is there any excuse for ever giving a placebo?"

In answering this question he stated that often a physician is forced to prescribe some medicine for a patient before any diagnosis has been reached. This is especially true when the patient is ignorant and does not understand that diagnosis must precede intelligent treatment.

Sometimes there is no indication for even systematic treatment, yet, the patient will be displeased if no prescription is given at the very first visit.

During Diagnostic Studies

Again, there may be a time when, during the carrying out of diagnostic tests, it is undesirable to give any potent medicine, lest it interfere with the test, and yet the patient must be encouraged by treatment. None of this is necessary if the patient and family are sufficiently intelligent.

In hopeless and incurable cases, the use of a placebo will often postpone the use of sedatives or lessen the quantity that must be given, even if there is pain. The human mind is susceptible to suggestion even in these modern and disillusioned days. The sympathetic physician will want to use every help for these pathetic patients and, if the placebo can help, he can not neglect it.



Is Treatment Effective?

The placebo must also be used in the evaluation of the result of treatment. Too often, we start a patient upon treatment that is supposedly specific and then, when good results result, we give all credit to the medication. In many cases, if a placebo had been given during a period of control and observation, the same good results might have occurred. This is especially true in cases of hypertension and other diseases in which nervous tension plays a predominant factor.

Keeping Patients Happy

In the first place one must distinguish between children and adults; again between those seriously ill and those less serious or convalescent.

According to my own experience, we can eliminate the children in a few words. The fewer visitors they have, the easier they are to handle; the more their families visit them, the harder they are to control. If left alone by their relatives, almost any thing interests them provided it is something new; when the novelty of that wears off, one should substitute something else and pass the former on to some other child.

As for adults: The seriously ill: As a rule, there is no difficulty about them, provided visitors are restricted and, regardless of who they are, the visit made brief. I do think, in fact it has many times been my experience, that spiritual matters often worry the seriously ill and a visit from a clergyman of their denomination, or any clergyman of their choice, has a marked effect in cheering them up, boosting their morale, as it were. This is often true in the case of persons who have no religious affiliation; a talk with a clergyman helps them considerably, provided, of course, the clergyman is prudent and does not try to effect a death-bed conversion. If he does, as a rule, nothing is accomplished.

Those less seriously ill and convalescents: They are the problem, and so are their visitors. Visitors, especially the family, bring all business and home concerns to them. To keep patients cheerful under such conditions is impossible. The only remedy is prudently to inform visitors that they will have to

be more careful in such matters or their visits will be restricted.

Apart from the visitors, we might divide these cases into two classes, i.e. those who have an aptitude for entertaining themselves, by reading and the like, and the larger number who have never been still in their lives. They must either talk incessantly or have a radio going full blast to feel really comfortable. I don't know what I would suggest for such people. If their convalescence is sufficiently long, they may quiet down and develop some rudimentary knowledge of how to while away part of the time without the accompaniment of noise, either vocal or radio-phonics. If their stay in the hospital is of short duration not much can be done. They are as a rule so accustomed to noise and activity that quiet is oppressive to them, but their noise is also unpleasant for others, so it would seem that each must give in a bit to the other for the sake of a negotiated peace.

To lay down any set of ideas or opinions as to what to do with hospital patients is difficult, because each patient requires separate consideration, which is manifestly out of the question in a hospital of any size, so it would seem that a balance has to be struck. I realize that the above is pretty sketchy, but it is the best solution I can give at present.—Rev. James H. Murphy, Chaplain, Buffalo Hospital of Sisters of Charity, 1833 Main Street, Buffalo, N. Y.

Prima Donna Medicine

At the present time, any patient with a severe illness is not, or should not be the sole responsibility of any one physician regardless of how learned or studious. The reason: no one can today carry all the present knowledge of diagnosis and treatment in his mind.

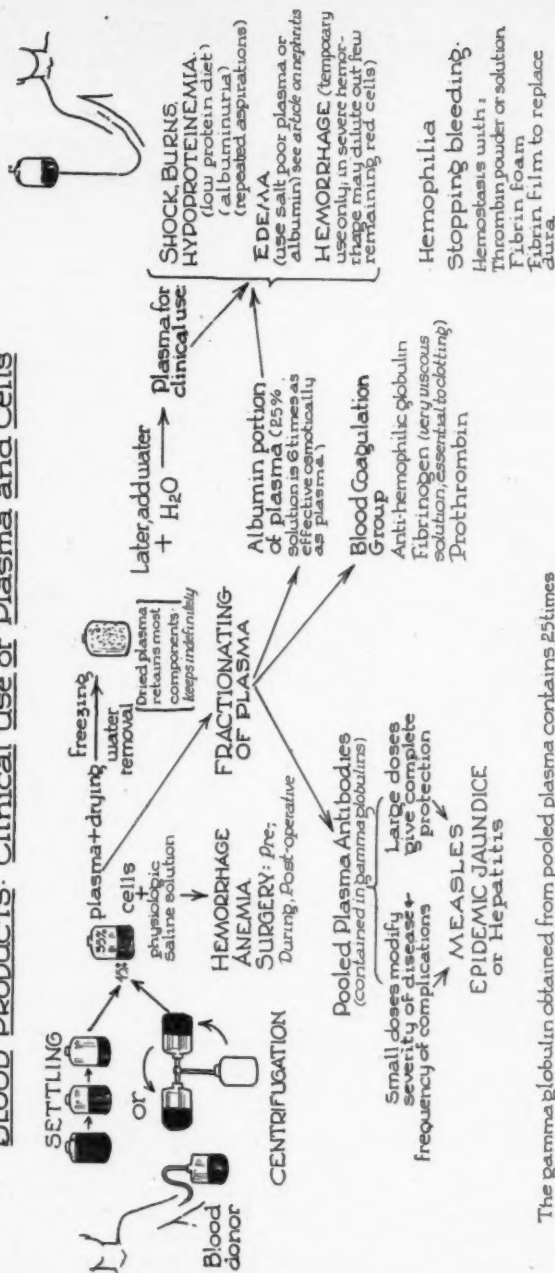
It is true that one physician must guide the patient along, but he should ask for consultation and advice from other men freely. Every physician should be willing to acknowledge that he does not know all the answers.

In other words, the day of the prima donna in medicine is past. The star system which works so well in moving pictures has no place in the care of sick persons.

Blood Products: Production and Uses

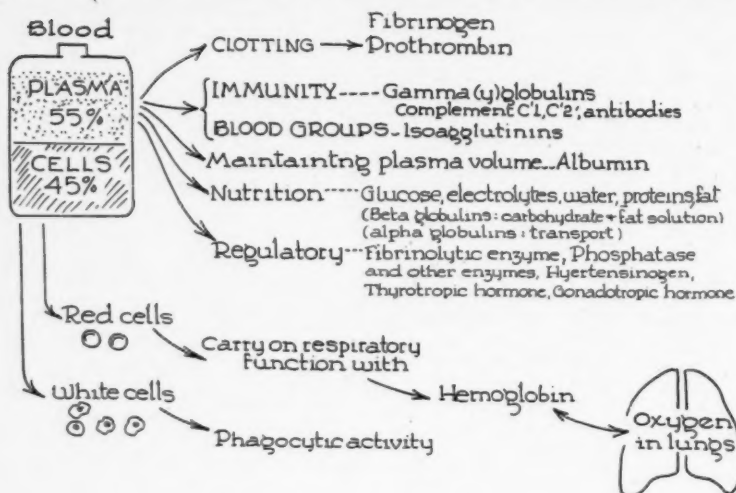
World War II accelerated the investigations being made into the composition of blood. Numerous blood products were found and new uses were discovered. The attached series of original CLINICAL MEDICINE illustrations indicates how the various blood products are prepared and how they are used in medicine and surgery. They were checked as to accuracy by Dr. Edwin Cohn, of the Department of Physical Chemistry, Harvard Medical School, Boston. Dr. Cohn was one of the leading investigators in this field during the war.

BLOOD PRODUCTS: Clinical Use of Plasma and Cells

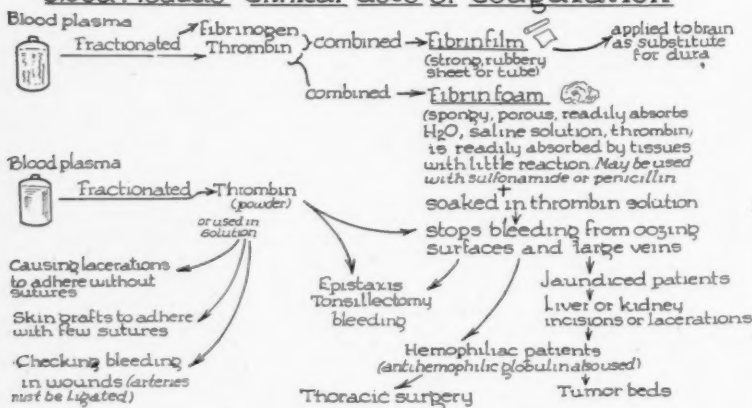


The gamma globulin obtained from pooled plasma contains 25 times as many antibodies as are found in one individual's plasma. Pooled plasma resembles convalescent serum, it may be used in prevention or treatment of conditions favorably affected by convalescent serum.

Blood Products: Functions of the Blood Components



Blood Products: Clinical Uses of Coagulation

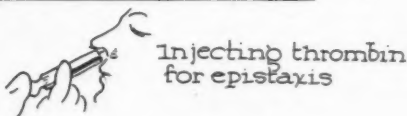
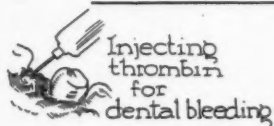
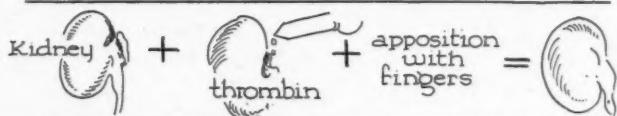
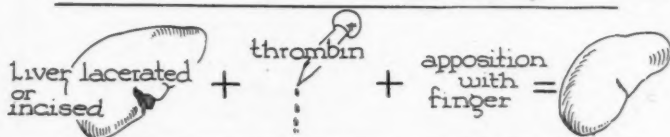
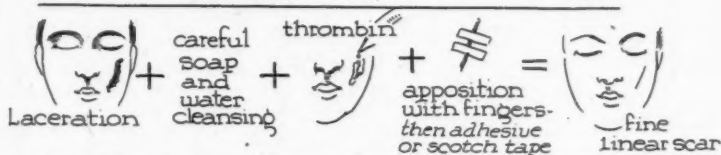
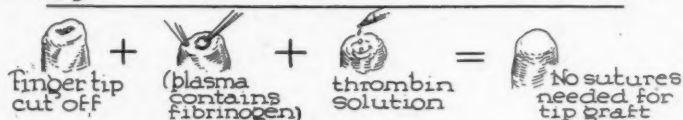


Blood Grouping and Transfusions

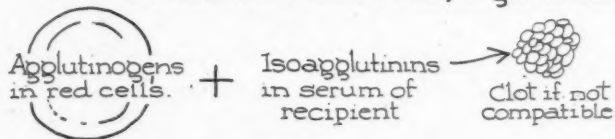
Group O blood is not agglutinated by either anti-A or Anti-B serum. Blood from such donors may be given safely for whole blood transfusions, since no reaction normally occurs regardless of the type of the recipient.

Clotting As Used By The Surgeon -

Thrombin (obtained from blood plasma) + Fibrinogen = Clot



Pooled Plasma or Serum may be given safely.



Blood Products: Coapulation

Natural Clotting:

Prerequisites for coagulation of the blood are to be found in the blood stream.



Clotting rarely occurs in smoothed-lined (endothelium) blood vessels. It does occur if tissue injury permits the liberation of thromboplastin



Thromboplastin is necessary to convert Prothrombin = thrombin.

Thrombin + fibrinogen already in blood = clot (fibrin clot)



How Many Persons in Each Blood Group?

Group of Red Blood Cells	Approximate Frequency Per Cent	Blood Grouping Globulins present in plasma
O	45 %	Anti-A, Anti-A ₁ , Anti-B
B	10 %	Anti-A, Anti-A ₁
A ₁	31 %	Anti-B
A ₂	10 %	Anti-B
A ₂ B	2.6 %	None
A ₂ B	1 %	None



CLINICAL NOTES AND ABSTRACTS

Penicillin Dosage

Penicillin is selective in its activity with a high degree of antibacterial action against gram-positive bacteria and its failure to inhibit the growth of most gram-negative bacteria. For practical purposes, most of the penicillin-sensitive bacteria, that are frequently encountered, particularly the gonococcus, pneumococcus, and beta-hemolytic streptococcus, may be treated without determining their sensitivity to penicillin. In cases of subacute bacterial endocarditis and certain staphylococcal infections, there may be wide variations in the sensitivity of the etiologic organisms, and a knowledge of the sensitivity of the bacteria may be of importance from the standpoint of treatment and prognosis.

Penicillin may be used in smaller doses than frequently employed without fear of developing penicillin resistance, except in the cases of staphylococcal infections.

Intramuscular injection results in a maximum blood level being achieved within fifteen minutes, thus making it unnecessary to begin therapy with a single intravenous dose. After the drug is absorbed, it is rapidly eliminated, so that 80 per cent of the intramuscular dose appears in the urine within the first two hours, and less than 5 per cent remains after four hours. The intramuscular injection of penicillin in beeswax-peanut oil is the most promising method of delaying absorption. Effective blood levels can be maintained for as long as twenty-four hours after 300,000 units of penicillin are given in 1 cc. of such mixture.

Oral administration. Penicillin may be given dissolved in tap water in a dose of five or six times as much as

would be given by injection. The penicillin must be given before meals since in most persons little or no penicillin is absorbed if it is given orally within a short time after eating.

Penicillin does not diffuse into body fluids and cavities. For this reason, local therapy as well as parenteral treatment is usually necessary in the treatment of infections of the pleura, pericardium and joints. In some localized infections, such as well established empyemas, parenteral injections are unnecessary; favorable results being obtained by local injections alone. In meningitis, clinical experience shows that many patients have failed to respond to parenteral penicillin alone. Penicillin should, therefore, be given both parenterally and intrathecally in cases of meningitis, except in the case of meningococcal infections, where systemic sulfonamide therapy is usually adequate and probably more effective than treatment with penicillin.

In subacute bacterial endocarditis, various forms of late syphilis, and chronic osteomyelitis, favorable results can be obtained and relapses avoided only by the maintenance of high blood levels continuously for a long period, to produce penetration into the lesion.

Tonsillitis and pharyngitis. Lasting beneficial effects are obtained only when penicillin is given parenterally. Local therapy with gargles and sprays is ineffective. After intramuscular injections, however, streptococci disappear or rapidly diminish, but they reappear if treatment is discontinued too soon. It has been definitely demonstrated that to cure cases of streptococcal sore throat, it is necessary to continue treatment

for five or more days. In pneumococcal pneumonia, it is necessary to continue treatment for several days after apparent recovery to ensure sterilization of the infected tissues and to prevent relapse.

Anti-bacterial effects persist after the time penicillin is no longer demonstrable in the serum by the usual tests. Doubling the size of the dose produces a blood level that is twice as high, but the effective level is prolonged by only one third.

In staphylococcal infections, 25,000 units should be given every two hours to provide optimal level. For streptococcal infections, 15,000 units every three hours are adequate. Penicillin remains active in the tissues for only three hours after the dose. The use of penicillin at intervals longer than four hours is, therefore, potentially dangerous as the bacteria may become resistant to its use.—*New Eng. Journal of Med.*, May 23, 1946.

Agranulocytosis

Agranulocytosis may be secondary to the administration of some drugs such as amidopyrines and anti-syphilitic drugs. Penicillin should be used in full dosage for treatment. The mouth should be kept clean with alkaline aromatic solution, or hydrogen peroxide and alkaline aromatic solution equal parts. Pentonucleotide may be given in full dosage of 10 cc., intramuscularly four times daily.—*S. L. VAUGHAN, M.D. in N.Y. S.J. Med.*, Jan. 1946.

Intramuscular Urography

The patient is placed on the table face down and diodrast (35 per cent solution) is injected, undiluted, intramuscularly into each buttock. The total dose varies from 10 to 20 c.c. depending on the age of the child. Half the quantity is given in each buttock. This is much easier in children than the intravenous method, and the pictures are sharper. An x-ray of the abdomen is taken first and if much gas is present the procedure is delayed until the gas can be removed by Prostigmine. X-rays are taken 10, 20 and 30 minutes after injection.—*B. LEVANT, M.D. Penn. Med. J. Jan.* 1946.

The Fat Baby and Rickets

Babies who gain too rapidly have a tendency to develop rickets, even when taking normal doses of Vitamin D. Babies on undiluted cow's milk, with 12% carbohydrate, gain rapidly and develop marked signs of rickets. Babies on breast milk have least tendency towards rickets. The closer the gain in weight follows that to be expected from the breast fed baby the less tendency towards rickets.—*JESSE R. GERSTLEY, M.D., in J. Pediat.*, Dec. 1945.

Treatment of Vertigo

Vertigo (Meniere's Disease) may be treated by the careful restriction of sodium chloride in the diet, and an even distribution of intake of fluids and food throughout the waking hours, and potassium chloride, 25 per cent solution, two teaspoonfuls twice daily in a small amount of tomato juice at the beginning of the meal.

The object of the treatment is to promote removal of body fluids. A mildly laxative effect may sometimes be produced by the potassium chloride. Histamine and nicotinic acid have not been successful.—*J. R. LINDSAY, M.D. (University of Chicago) in J. Indiana S.M.A.*, Jan. 1946.

Treatment of Compound Fractures of the Femur

Larger adherent scars should be avoided by covering the area with a skin graft as soon as possible. One should reduce the fracture manually and then use traction and suspension as a method of holding the reduction, rather than of producing traction.

Stiffness of the knee may be partially prevented by use of resistive exercises and the use of delayed closure.

Limitation of extension may be avoided by the treatment of fractures above the lower third with the knee in full extension.

The use of early internal fixation in the presence of an open wound is accompanied by a greater danger of infection — *RALPH SOTO-HALL, M.D., in J.A.M.A. Jan. 19, 1946.*

Treatment of Anemia

The use of iron in anemia is highly specific in those cases in which it is indicated, including

- (1) Hypochromic nutritional anemia of infancy and childhood.
- (2) Chronic hemorrhagic anemia.
- (3) Achlorhydric and related anemias of women.
- (4) Hypochromic anemia of pregnancy.

The iron should be administered orally, preferably ferrous sulfate, one tablet 0.3 Gm. (5 gr.) twice daily, immediately after meals. For small children, elixir of ferrous sulfate, in teaspoon doses twice daily, may be used.

The use of alkalis prevents the absorption of iron, both dietary and medicinal. This must be remembered in patients with peptic ulcers.

Liver Extract

Liver extract should be used for:

- (1) Pernicious anemia
- (2) Pernicious-like anemia due to intestinal short-circuiting, stricture, or sprue.
- (3) Macrocytic anemia associated with liver disease.

It is most effective when given by injection.

The therapeutic dose used is ten units weekly until there is complete remission. For maintenance the same dose is employed but the interval is increased to meet the needs of each patient. The majority of patients require an injection about once a month.

Splenectomy

Splenectomy should be considered in:

- (1) Congenital hemolytic jaundice.
- (2) Acquired hemolytic jaundice.

Blood transfusion is dangerous in many types of hemolytic jaundice and should be avoided. This is especially true during preparation for splenectomy. Splenectomy may also be tried in splenic anemia.

Transfusion

Blood transfusion may be used:

- (1) To save life in acute and profound anemia.
- (2) To build up body resistance in some chronic anemias, particularly those resulting from infections that are not controlled otherwise.
- (3) To prolong life and comfort in some otherwise hopeless anemias.

Treatment of the Cause

The majority of blood dyscrasias are secondary, to a wide variety of diseases or poisons. Lasting results will be obtained only when the primary condition is treated. A diagnosis must be made in these types of anemia before any treatment should be given: Hemolytic jaundice, splenic anemia, anemia due to blood loss from hidden sites, anemia due to mechanical abnormality of the intestine, anemia due to operable malignancy, anemia due to intestinal parasites, to poisons, infection and to renal insufficiency.

Types of anemia not specifically benefited by any treatment are: Anemia due to inoperable malignancy, achrestic anemia, sickle-cell anemia, hemolytic jaundice not responding to splenectomy, irradiation anemia, aplastic anemia (of adults), anemia due to incurable infections or to incurable renal insufficiency, myelophthisic anemia and Mediterranean anemia.—S. L. VAUGHAN, M.D. in *N.Y. S.J. Med.*, Jan. 1946.

Bal Therapy of Arsenical (Syphilis) Poisoning

BAL (2, 3-Dimercaptopropanol) is effective in the treatment of severe arsenic poisoning occurring during the continued use of arsenicals in the treatment of syphilis. It is also effective in the treatment of severe arsenic poisoning occurring after exposure to the arsenical gases.

The toxicity of arsenicals rests on the fact that they combine with and block the function of physiologically essential groupings in the cell. BAL removes arsenic from the cells.

A large proportion of animals receiving otherwise lethal doses of mapharsen, lewisite, or phenylarsenoxide could be saved by the systemic administration of BAL.

BAL is prepared in peanut oil and benzyl benzoate and furnished in glass-sealed ampules.

Dose: The dosage of BAL, which, repeated at four hour intervals, is found to be reasonably effective, varies from 2½ to 5 milograms per kilogram of body. Doses larger than 4 or 5 kilograms may produce nausea, vomiting, headache.

burning sensation in the lips, mouth, and eyes, generalized muscular aching, burning and tingling of the extremities, and a sense of constriction of the chest. A maximum of 3 milligrams per kilogram of the patient's body weight has therefore been established as the standard dose. Six injections are given daily for the first 2 days, 4 injections on the 3rd day, and injections twice daily, thereafter, for 10 days or until complete recovery occurs. Milder cases may receive 2.5 milligrams per kilogram at each injection. Mortality is reduced and the period of hospitalization shortened in severe complications. In the milder complications, recovery is accelerated.—HARRY EAGLE, M.D., in *Jrnl. of Venereal Disease Information*, May, 1946.

Congestive Failure

Patients who are short of breath on exertion or who encounter difficulty breathing at night, or who are subject to paroxysms of disordered rhythm, such as showers of premature beats, attacks of auricular fibrillation or ventricular tachycardia, may have some congestive failure. They may have no rales in the lungs, enlargement of the liver and no perceptible edema. These symptoms may be controlled by the intravenous injection of mercurial diuretics, once or twice weekly.—HARRY GOLD, M.D., in *N.Y.S.J.M.*, Jan. 1, 1946.

Treatment of Erythroblastosis Fetalis

P. G. Danis, M.D. (*J. Pediat.*, 28, 457, Apr. 1946) successfully treated 5 cases of erythroblastosis fetalis in newborn babies with Rh positive concentrated cell transfusions. There were no transfusion reactions and no subsequent anemia. The concentration of the erythrocytes decreases the frequency and volume of transfusions necessary. It is obtained by siphoning off plasma to within a cm. of the cell level in refrigerated blood. Supplementary measures included administration of glucose, because of the liver dysfunction associated with erythroblastosis, and of choline which prevents fatty degeneration of the liver.

Antiseptics in Ophthalmology

Local antiseptics, commonly employed in ophthalmology, delayed corneal healing and often caused permanent opacities when tested on rabbits. Phemerol caused only slight delay in healing and no permanent damage while sulfathiazole and penicillin produced neither delay nor opacities. The employment of common local antiseptics in corneal injuries should be limited to those injuries in which there is a strong possibility of infection.—Bull. U. S. Army Med. Dept., March, 1946.

The Climate and the Patient

With the use of any test which we wish—the breath holding test, blood pH, blood sugar level, skin reaction, the dark adaptation of the eye, or the circumference of the leg of the patient, the findings will vary with different seasons.—WILLIAM F. PETERSEN, M.D., in *Annals of Allergy*, September, 1945.

Short Leg Backache

The short leg is a common cause of faulty posture and muscle spasm in the back. Every patient with chronic backache should be carefully checked for short leg, and back muscle spasm. A simple and fairly accurate method of doing this is to have the patient lie on his back, and measure from the anterior superior iliac spine to the lower border of the internal malleolus of the ankle on each side.

In many cases, the short leg may be built up by a lift given to the heel and a portion removed from the heel of the long side. The sole should be built up as well as the heel.—JOHN M. BUTLER, M.D. in *The Jour. Lancet*, Jan. 1946.

"Ill Health"

Vague "ill health" among elderly patients (cases difficult to diagnose and treat scientifically) may be due to moderate dietary deficiencies.—GEORGE R. COWGILL, Ph.D. (Professor of Nutrition, Yale) in "The Doctors Talk it Over" (Lederle Laboratories).

Poor Eating Habits of The Runabout

Toward the end of the first year of life, increase in weight is much less rapid than it is during the first six months of life. Correspondingly, there is need for less food for purposes of growth in the latter part of the first year and in the next few subsequent years. This results in a physiologic waning of appetite. A mother who is accustomed to having her baby demand large quantities of food is alarmed when this demand lessens or when the demand is even replaced by the child's refusal of much of the food. The mother usually responds by undue urging. Thus, a vicious cycle is likely to be started in which the mother insists that the baby eat more than he wants and the baby refuses to comply.

Another phase of the difficulty is encountered if the mother finds that the child does not take solid food readily, she may attempt to increase the amount of more easily consumed, liquid food. Thus, milk is given in larger quantities than before and the fat content of the diet is consequently increased. Few people realize that a quart of milk will supply almost one-half of the total daily calories needed by a runabout child.

We advised the mothers (1) to stop forcing food, allowing the child to eat what he wanted in a reasonable, but limited time; (2) to offer mostly the foods that the child liked without undue coaxing or threats; (3) to remove any food left, without comment, and to offer no more until the next meal; and (4) to give no more than approximately 1 pint (500 c.c.) of milk in twenty-four hours. In some instances we advised that the milk be skimmed. —EDITH S. HEWITT, M.D., and C. ANDERSON ALDRICH, M.D. in *Jour. of Pediatrics*.

Pentothal Anesthesia and Respiratory Dysfunction

When pentothal intravenous anesthesia is being given and respiratory dysfunction develops, immediately change to ether anesthesia by inhalation and avoid serious consequences. —R. K. LENZ, M.D. in *Am. J. Surg.*, May, 1946.

External Otitis

Dissolve 1 chlorazene tablet (chloramine U.S.P.) in 1 ounce (29.5 cc.) of tepid water. Using an ordinary medicine dropper, the auditory canal is flushed until the fluid returns clear. The solution is then allowed to remain for a few minutes and the ear is drained. Put liquid petrolatum on the irritated skin. This treatment should be carried out on alternate days until the ear is dry. The canal is then swabbed with a solution of metacresylacetate (cresatin) to which is added thymol 1 per cent. —J. GOLDSTEIN, M.D. in *Digest Ophthal. & Otolaryng.* Jan. 1946.

Coffee, Tea and Cola Drinks

Coffee contains $\frac{1}{2}$ to 2 grains of caffeine per cup

Pepsi-Cola— $1\frac{1}{2}$ grains

Spur— $\frac{1}{2}$ grain

Coca-Cola— $\frac{1}{2}$ grain

Tea— $\frac{1}{4}$ to $\frac{1}{2}$ grain

Sanka— $\frac{1}{8}$ to $\frac{1}{4}$ grain

Patients who drink large amounts of coffee have headaches, confusion, ringing in the ears, flashes of light, pounding of the heart, tremor and insomnia. Persons with peptic ulcer are often aggravated by coffee, tea, or a cola drink. —S. Med. and Surg. Meeting, 1946.

Testicular Lesions

Testicular lesions in 10,000 inductees, included 165 atrophied testes in 152 men, 62 per cent due to mumps. There were 18 cases of surgical removal of single testes, usually in attempts to correct undescended testes. 79 undescended testes were found in 73 men, and incidence of 0.8 per cent (many of the inductees were rejectees who were returned for reclassification). Sixteen per cent of the undescended testes, either abdominal or inguinal, were associated with hernia. The difference in incidence of undescended testes in boys under 15 (4.0 per cent) and that found in this study of adults (0.8 per cent) suggests that some 75 per cent of preadolescent undescended testes, spontaneously descend into the scrotum. —A. BAUMRUCKER, M.D., in *Bul. U. S. Army Med. Dept.*, Mar., 1946.

Acne and Boils

Many patients with acne and boils are hypothyroid. The hypothyroidism is manifested by low metabolic rate, low morning temperature, hypercholesterolemia, and chronic fatigue. Thyroid extract in doses of 1 to 2 grains daily, in divided doses, will produce a rise in the basal metabolic rate with the morning temperature, as well as improvement in symptoms. These patients should be placed on a low fat diet with adequate caloric intake. There is a rapid relief of pain and disappearance of acute inflammation of the skin. A decrease of oiliness and improvement of strength, physical capacity and sense of well being.—MARK M. MARKS, M.D., in *S. Med. Jnl.*, June 1946.

Amphetamine Sulfate for Barbiturate Poisoning

The intravenous injection of amphetamine (benzedrine) sulfate relieves barbiturate poisoning. Ten milligrams of the drug is dissolved to each 1 cc. of physiologic solution of sodium chloride. Twenty milligrams are given half-hourly or hourly until the patient is awake. An occasional comatose case may require as much as 400 mg. in 8 hours.—A. W. FREIREICH, M.D. in *J.A.M.A.*, June 22, 1946.

Benadryl for Allergic Disorders

Benadryl gives symptomatic relief in acute and chronic urticaria, vasomotor rhinitis, asthma and allergic conjunctivitis.—EMANUEL SCHWARTZ, M.D. in *N.Y. S.J. Med.*, June 1, 1946.

The Post-Menopausal Cervix

The cervix of the normal uterus remains open until a year or more after permanent cessation of menstruation, until drainage of the uterine secretion is complete. If there has been cervical disease or operative manipulation, premature menopausal obstruction of the cervix may occur, with resultant pyometra a frequent complication.—ARTHUR H. CURTIS, M.D. in "Textbook of Gynecology" (W. B. Saunders Co.)

Scabies

A ten per cent solution of Benzyl benzoate, 2 per cent Procaine hydrochloride, and Ethyl alcohol of 4,000 cc is an effective spray, or local application, for the treatment of scabies. The patient washes thoroughly with soap and water and then has the solution sprayed or painted on. At the end of 24 hours, treatment is repeated. A one per cent DDT sol. may be added. It is also effective in the treatment of pediculosis pubis.—S. L. HANFLING, M.D., in *N.Y. State Jnl. of Med.*, June 1946.

Excessive Scaling Skin

Large doses of vitamin A are of benefit in the treatment of cases characterized by excessive abnormal keratinization, either localized or diffused, such as: keratosis beneragica, corns, callosities, xerodermopigmentosum, lichen simplex chronica, dermatitis papularis, nummular eczema, brittleness of the nails, and acne vulgaris—especially those which exhibit a marked follicular plugging.—E. URBACH, M.D., *Penn. Med. J.*, May, 1946.

Para-aminobenzoic Acid in Tsutsugamushi Disease

Large doses of para-aminobenzoic acid reduces duration of fever, the severity of the symptoms and the number of complications. The mortality rate is also decreased by the use of para-aminobenzoic acid administered during the first week of the disease. The total dose varies from 200 to 435 grams. Para-aminobenzoic acid also seems to be of benefit in clinical, mouse-borne typhus fever.—NICHOLAS A. TIERNEY, M.D., in *J.A.M.A.* May 25, 1946.

Vitamin A

The Council on Pharmacy and Chemistry of the American Medical Association finds no justification for routine administration of vitamin A in doses in excess of 25,000 units per day. This is of special interest at this time because of the use of vitamin A in hypertension and in skin diseases.—*J.A.M.A.*

Rutin for Hypertension

The administration of rutin (a glucoside derived from flavonol, a tasteless, yellow, non-toxic powder obtained from buckwheat, tobacco and other plants) returns capillary fragility to normal in many cases of hypertension and thus prevents capillary bleeding into the retina or brain. It has been used experimentally for two and a half years. — J. F. COUCH, Ph.D., Eastern Regional Research Laboratory, Bureau of Agricultural and Industrial Chemistry, U.S. Department of Agriculture, Philadelphia, Penn.

Fibrositis and Dupuytren's Contracture

My experience in the treatment of primary fibrositis with Vitamin E has been most gratifying. Primary and not secondary fibrositis responds to Vitamin E treatment. The biggest pitfall in the treatment of this condition is correct diagnosis. Many other conditions and particularly functional complaints may be easily interpreted as being those of primary fibrositis.

Dupuytren's contracture is a type of fibrositis that one views objectively. Also, the effect of treatment can be seen objectively. Early cases of Dupuytren's contracture have been cured with Vitamin E. The more prolonged and protracted cases in which marked secondary changes have taken place in tissue have not responded completely with Vitamin E treatment. However, the latter conditions show improvement as regards changes in the "tough" skin which always accompanies this condition. The skin overlying the contracture feels like scleroderma. It has been my impression that in the latter advanced cases surgery along with Vitamin E would offer better clinical results than either method of treatment taken alone.

The type of individual who complains of stiffening up in cold drafts and who particularly develops recurrent attacks of lumbago which are not explained by trauma and who develops wry neck upon the least exposure to drafts and who develops nodules is very easily diagnosed as a case of primary fibrositis. Creatinuria

responds to Vitamin E treatment. The blood levels of Vitamin E are normal in cases of primary fibrositis but the Vitamin E utilization curves are abnormal as shown in the January, 1946, issue of *Medical Clinics of North America*.

The natural mixed tocopherols marketed by the pharmaceutical houses is the most economical method of prescribing large doses of Vitamin E. It has been my impression that 100 mg. taken three times daily until marked improvement is the optimum dose. The dose is gradually decreased until a maintenance dose of 50 mg. is given daily. The latter maintenance dose may be continued indefinitely. — CHAS. LE ROY STEINBERG, M.D., Medical Arts Bldg., Rochester, New York.

Follicular Hyperkeratosis

The administration of 100,000 or 200,000 U.S.P. units of vitamin A daily over a period of several months will benefit or cure many clinical conditions characterized by follicular hyperkeratosis. Essential lesion is a goose flesh-like, horny papules, arising at the site of the sebaceous orifices, with a small projecting plug. These lesions are usually found on the anterior and lateral surfaces of the thighs, arms, and buttocks. The more severe cases are accompanied by marked dryness and scaliness of the skin. — E. URBACH, M.D. in *Penn. Med. J.* May, 1946.

Toxic Reaction to Sulfonamides

A patient who has previously experienced fever, dermatitis, or conjunctivitis when receiving one of the sulfonamide compounds will run more risk of a similar reaction during a subsequent period of treatment with any of the sulfonamides even though a considerable time may have elapsed between courses. If such a patient must be given a sulfonamide again, he should receive a different compound from the one used during the first course and should be observed carefully for toxic reactions. H. F. DOWLING, M.D., *Annals Internal Med.*, April, 1946.



THUMBNAIL THERAPEUTICS

Back Pain

Suspect rheumatoid spondylitis when a young man complains of chronic, recurrent or persistent low back aching and stiffness, with or without catching pains, especially if the sedimentation rate is elevated or general constitutional symptoms occur; suspect it in sciatica in young men, especially if recurrent or alternating from side to side; suspect it in patients with rheumatoid arthritis who develop persistent back symptoms.—E. W. BOLAND, M.D. in *J. A. M. A.*, Nov. 25, 1945.

Fat, Hairy Women

Of the thousands of fat, hairy women with menstrual abnormalities, only a rare few have pituitary disease. The others need a frank discussion, weight reduction and cosmetic treatment for excess hair.—E. H. RYNEARSON, M.D. in *Med. Clin. N. Am.*, July 1945.

Hypothyroidism and Premature Delivery

Hypothyroidism is frequently the cause of premature delivery. It can be corrected by keeping the basal metabolic rate within normal limits.—R. JOHNSTON, M.D. in *Texas S. J. M.*, May, 1945.

Weakness

Kidney disease should be thought of as a cause for anemia, hypertension, fatigue or nocturia. The routine urine examination may be without abnormal findings, but repeated observations indicate a low specific gravity.—MILES BREUER, M.D. in *J. Urol. & Cut. Rev.*, Oct., 1945.

Albuminuria

The albuminuria in chronic nephritis need not be treated.—MILES BREUER, M.D. in *Urol. & Cut. Rev.*, Oct., 1945.

Renal Tumors

Renal tumors may produce symptoms not referable to the urinary tract. Normal urine does not rule out tumor. The classic triad—palpable tumor, hematuria and pain—is a late manifestation. Hematuria is the most important symptom.—G. SLOTKIN, M.D. in *N. Y. State J. M.*, July 1, 1945.

Neurasthenia

Fatigue and weakness of allergic origin (allergic toxemia) must be differentiated from "nervous fatigue" or neurasthenia. The neurasthenic patient gives a typical history. The allergically tired patient, due to ingestion of foods to which he is sensitive, responds to an elimination diet and removal of offending foods.—THERON RANDOLPH, M.D. in *Ann. Allergy*, Nov., Dec., 1945.

Gastro-Enteritis and Otitis Media

Every infant who has vomiting and diarrhea should have frequent regular examinations of the ear-drums to rule out otitis media and mastoiditis. Otitis may result in vomiting and diarrhea, which is not due to dysentery, and may need incision of the ear-drum or mastoid operation for relief.—Dr. M. E. WEHNER, in *Proceedings Royal Soc. Med.* Aug., 1945.

Fluorescent Lighting and the Eyes

Fluorescent lamps operate on alternating current, usually 60 cycles per second. With each change in direction of the current, there is a pause and the lamp dims. This tends to produce a flicker and disagreeable eye sensations. Treatment: Combine tubes in pairs, so that maximum output of one tube coincides with minimum of the other.—E. B. DUNPHY, M.D., (Professor of Ophthalmology Harvard Medical School) in *New Eng. J. Med.*, June 7, 1945.



DIAGNOSTIC POINTERS

Vitamin K for Urticaria

Chronic urticaria (hives) and angio-neurotic edema respond to oral administration of synthetic vitamin K (menadiolone: 2-methyl-1, 4-naphthoquinone) in 2 mg. doses before each meal (a total of 6 mg. daily). Response was very good if the patient's prothrombin time was prolonged above the normal limit of 35 seconds. Asthma, allergic rhinitis and allergic eczema did not respond. Treatment was continued for 1 to 4 weeks.—J. H. BLACK, M.D. (Southwestern Medical Foundation, Dallas, Texas) in *J. Allergy*, July 1945.

Stilbestrol for Prostatism

The oral administration of 1 to 4 mg. of stilbestrol by mouth causes a decrease in nocturnal urination and in the size of the enlarged prostate in older men.—WM. KLEIN, M.D., in *Archives of Surgery*, May, 1944.

Strong Procaine Solutions

When ordinary strength procaine solution does not result in satisfactory local anesthesia, 4 percent procaine solution can be injected around the nerve trunks in the area.—J. C. FARQUHAR, in *Naval Med. Bul.*, July, 1944

Shock

The rapid administration (1000 c.c. in ten minutes) of blood and plasma is an excellent control measure. The slow administration of intravenous fluids when their immediate effect is urgently needed is a carry over from days when severe reaction could be expected from most intravenous medication. Citrated blood is two to three times effective as plasma in the treatment of primary and secondary shock. The only reason we operate on a patient in shock is to control hemorrhage.—FREDERICK BOLEN, M.D., *Naval Med. Bull.* April, 1945.

Rectal Medications in Childhood

Aqueous solutions of 1% potassium bromide, 0.5% sodium salicylate (along with 1.2% sodium bicarbonate), and 0.5% sulfanilamide are rapidly absorbed when instilled intra-rectally in children. Sulfanilamide in suppository form is absorbed less completely than in aqueous solution.—J. W. A. MACKENZIE, in *Arch. Dis. Child.*, March 1945.

Surgical Treatment of Tetanus

A case of tetanus that does not respond promptly should be treated by wide surgical excision of the infected area. This removal of the focus often results in dramatic improvement.—F. G. BURKE, M.D. in *Bull. Dist. Col. M. Soc.*, June 1944.

Toxic Hepatitis

Amino acids and especially methionine should be given to patients suffering from hepatitis (prolonged chloroform anesthesia, carbon tetrachloride, trinitrotoluene). A high carbohydrate, high protein and low fat diet should be given.—*Minnesota Med.*, Nov. 1945.

Sulfathiazole Gum

The chewing of one sulfathiazole gum tablet resulted in a sulfathiazole concentration of 67 mg. per 100 c.c. of saliva. The concentration continued to increase up to the end of one hour.

Each tablet contained 0.25 Gm. of sulfathiazole (White's).—J. W. E. HARRISON, Ph.D., in *Am. J. Pharmacy*, June, 1945.

Plasma for Diarrhea

There is a magical affect when plasma is given for diarrhea. A thousand c.c. of plasma every three days should be sufficient for the usual severe diarrhea case.—CAPT. KENNETH SEIFERT, *Wisc. Med. Jnl.*, Oct., 1945.

NEW BOOKS

Any book reviewed in these columns will be procured for our readers if the order, addressed to **CLINICAL MEDICINE**, Waukegan, Ill., is accompanied by a check for the published price of the book.

The Compleat Pediatrician

W. C. Davison, M.D.—Duke University
Press 5th Ed. 1946. \$3.75.

The author of this most unusual slim little volume writes, "The Compleat Pediatrician with its emphasis on symptoms and signs as clues, rather than on description, was compiled in the hope that it would be of value from a practical point of view. Physicians, when confronted with a child who has certain symptoms, cannot always obtain the necessary help in diagnosis from a systematic textbook, for often they are unable to interpret the patient's diseases from his signs and consequently cannot locate the description of the correct disease."

"As a rule, a student or physician notices the patient's most obvious symptoms and recalls that they occur in a certain disease, but frequently he forgets that these same symptoms may be present in several diseases. An erroneous diagnosis is often the result." (An associate professor of medicine at a leading medical school when asked recently about what book of differential diagnosis he would recommend, answered complacently that he did not use any—evidently, he felt that his mind could carry a complete list of all possible diagnoses of each symptom and sign encountered.—Ed.)

An ingenious scheme permits the physician to find which disease conditions may cause each sign or symptom, an especially necessary method in pediatrics in which a very few symptoms may represent the baby's response to divergent pathologic conditions.

Briefly summarized tables give salient information needed in laboratory and x-ray diagnosis. (Why isn't the simple sulfosalicylic acid test for albumin, which requires only a few drops, given?—Ed.)

"To diagnose a disease, it is necessary to think of it" is an old maxim. This book makes it easy.

Treatment of Arthritis and Rheumatism in General Practice

(Particularly in Women. A Different Approach to the Problem.)

By Bernard Aschner, M.D., *Stuyvesant Polyclinic, New York. Froben Press. 1946. \$5.00.*

The author, a gynecologist, feels that arthritis is primarily a problem in the female, and that therapy should be directed with this thought in mind. He also derives much from Hippocrates and the methods of practice of the pre-scientific era. His list of medications, both internal and external, will offer many helpful suggestions for the patient who does not respond to physical therapy.

Penicillin

Edited by Professor Sir Alexander Fleming, M.B., F.R.C.S., Professor of Bacteriology, University of London, St. Mary's Hospital, London, England. Blackiston Co. 1946. \$7.00.

Both laboratory and clinical aspects of penicillin therapy are presented by the discoverer of penicillin and by 28 surgical and medical authorities. Technique of administration for conditions met in general practice and for each special field are carefully given, together with discussions on associated treatment and illustrative case histories. A valuable book for the researcher and the clinician.

The Face in Health and Disease

By Max Thorek, M.D., L.L.D., D.Sc., Professor of Surgery, Cook Country Graduate School of Medicine, Chicago. F. A. Davis Company. 1946. \$8.00.

A unique collection of 636 photographs and sketches illustrating normal and abnormal facies, with legends which call attention to diagnostic points. Correlating material and illustrations indicate anatomic structures, dermatologic conditions, endocrine disorders, congenital deformities, emotional states, and neurologic diseases.

An Introduction to Clinical Surgery

(Surgical Wherefores and Therefores.)

By Charles F. M. Saint, M.D., F.R.C.S., Professor of Surgery, University of Cape Town, South Africa. Post-Graduate Press, 1945. \$3.75.

A truly clinical work, written especially for the student just entering the study of surgery, it is of value to any surgeon who wishes to systematize his consideration of surgical lesions and their differential diagnosis. Why do certain symptoms and signs occur and what is the underlying condition? One will re-think his diagnostic points, to the better advantage of his skill.

Technic of Psychoanalytic Therapy

By Sandor Lorand, M.D., New York Psychoanalytic Institute, N. Y. C. International Universities Press. 1946. \$3.50.

A brief presentation of Freud's technic of psychoanalysis, as modified slightly by the author, embellished with case histories illustrating certain difficulties in the sexual field. Interpretation, anxieties and phobias, compulsion neuroses, character neuroses, neurotic depression, dream analysis, problems of counter transference and termination of the analysis (concerning which, little has been written) are included.



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